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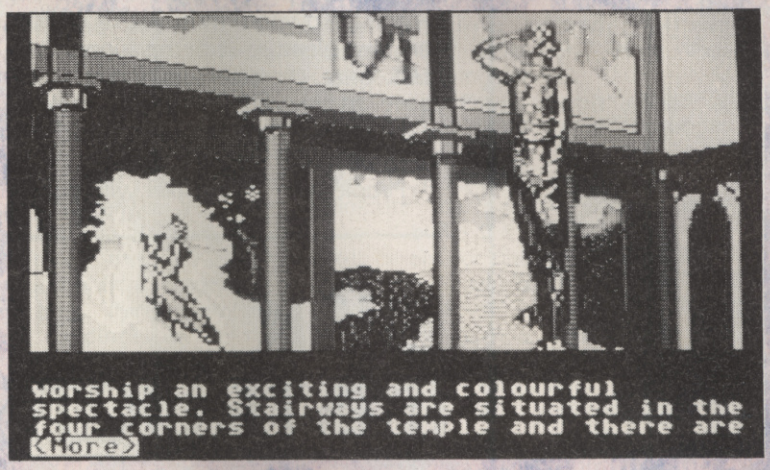
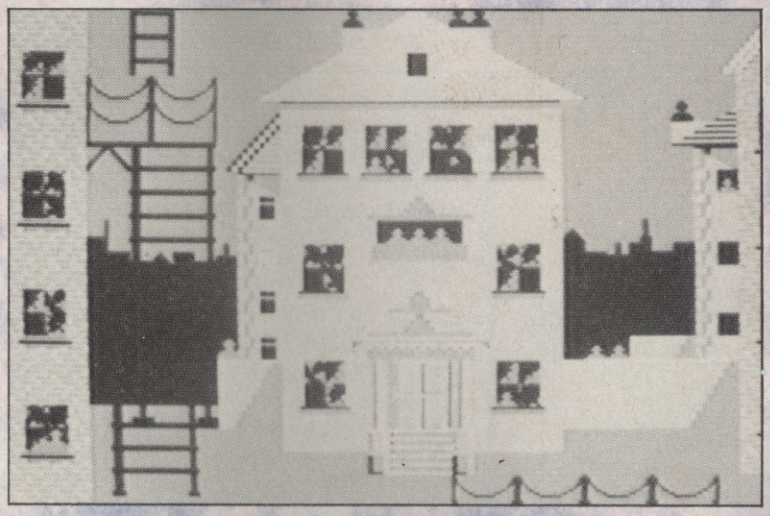


Disk Dungeons



Mobster

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WELCOME

A very warm welcome to the very first issue of Commodore Disk User - the very latest in computer magazines.

No more boring pages of listings, no more tired typist's fingers, no more SYNTAX ERROR messages at three o'clock in the morning, all of our programs are on the disk!

This first issue of Commodore Disk User is packed full of programs to suit all Commodore 64 and 128 owners. Those with an artistic bent can take pleasure with the superb 3 INTO 1 PLUS sprite, character and background editor as well as play with the drawing package; one of a number of free programs from Compunet 70 to be found on the disk.

People who feel happier with a joystick in their hand rather than a paintbrush will no doubt enjoy the challenge that our Ski Run program provides, while those who prefer to think a little more about their games can have a go at running a gangster organisation with Mobster.

As well as the above and many other programs, Commodore Disk User is also packed full of the latest news, disk based games reviews, programming hints and much more. With the readers survey in this issue you even get a chance to tell us what you'd like to see in the magazine!

DISK INSTRUCTIONS

We have done our best to make sure that Commodore Disk User will be compatible with all versions of the C64 and C128 computers and their associated disk drives.

Getting the programs up and running should not present you with any difficulties at all, simply put your disk in the drive and enter the following command:

LOAD "MENU",8,1

Once the disk menu has loaded you will be able to start any of the programs simply by pressing the letter that is to the left of the program that you want to use.

C128 users please note that you should be in C64 mode when using the disk. You can enter C64 mode by either:

i) Holding down the Commodore key (bottom left of the keyboard) when turning the computer on or,

ii) After turning the computer on type G064 and answer "Y" when prompted "ARE YOU SURE?".

It is possible for some programs to alter the computer's memory so that you will not be able to LOAD programs from the menu correctly until you reset the machine. We therefore suggest that you turn your computer off and then on before loading each program.

Copying the programs

The disk is not protected in any way so you can copy the programs onto your own disk should you wish. A file copier, that to our knowledge will work with all drives, is included on the disk for this purpose. All of the programs can be loaded independently of the menu by following the instructions with the relevant article.

We would stress that you should only copy the programs on the disk for your own use. After all, we don't want to have to start protecting them.

Reading the directory

Should you examine the directory of Commodore Disk User you will see that there are two files present on the disk. The first are the PRG files. These are the actual programs that are on the disk. The second type of file is as the USR file. This file is only used as a comment or separator on the directory listing and cannot be loaded.

A USR file of a solid line is used to separate each of the programs. If you're copying programs onto your own disk then make sure that all necessary parts are copied over. For example if you take a look at the directory you will see that there are two parts to the Mobster program.

Disk Problems

Should you have problems loading any of the programs on the disk DO NOT return them to the editorial office. All faulty disks shoulld be returned to:

Commodore Disk User Vol 1 No 1
Returns
Disk Copy Labs
20 Osyth Close
Brackmills Industrial Estate
Northampton
NN4 ODY

and a replacement disk will be sent to you. Note. Do not return the magazine.

NEWS NEWS NEWS

Well waggled

Konix has announced the final winner of the company's Speed King joystick waggle competition. He is Maris Geert of Belgium, who has been presented with the top prize of £100. Maris guessed that a Speed King joystick would last 643 hours of solid waggling. In fact he was extremely close - it survived 652 hours, with a total of 17,604,000 waggles.

Guesses by other competitors ranged from a pessimistic 14 minutes to a wholly unrealistic 8 years. The Speed King is produced by Konix Computer Products, Unit 13, Sirhowy Hill Industrial Estate, Tredegar, Gwent NP2 4QZ. Tel: (049525) 5913.

Bargain business bundle

Electric Distribution, the European publisher of Timeworks software, has announced a special bundling deal on three of the US software house's business packages for the C64 and 128.

Each bundle consists of: Word Writer 3, a word processor; Data Manager 2, a database aimed at report writers; and the spreadsheet Swiftcalc. Also included in the price is Softline, Electric's software support service.

The four items, if bought individually, would cost £149 for the C64 and £229 for the 128. Electric is offering them at £99 on either computer. For further information contact Electric Distribution at 8 Green Street, Willingham, Cambridge CB4 5JA Tel: (0954) 61258.

The Right Stuff

Electronic Arts has announced the release of a new flightsim, Chuck Yeager's Advanced Flight Trainer, who is the consultant for the program, was responsible for flying the high-powered experimental place, the Bell X-19, back in the 1960s, and was featured in the recent film, The Right Stuff.

In producing Advanced Flight Trainer, he worked closely with software artist Ned Lerner. The program uses a super-fast frame-rate to give the feeling of mach-speed flight. It features three levels of onscreen instruction from Yeager. The first teaches basic flying skills like takeoffs and landings, while the second goes on to advanced maneouvres like aileron rolls and hammerhead stalls.

By the third level, the simulator teaches acrobatic stunts, and the player can go on to the Formation Flying Feature, which means following Yeager's lead through obstacle courses and 3-D terrain. A built-in flight recorder allows students to create and store their own stunt flying patterns.

A Test Pilot option offers a selection of 14 different aircraft to check out, using actual test pilot aircraft evaluation charts. You can simulate the day on which Yaeger himself broke the sound barrier in the X-1, or opt for historic aircraft like the Sopwith Camel, Spad and Mustang. Modern planes such as the high-altitude SR-71, F-16, and F-18 are also selectable. Finally there is a racing option, with six different racecourses. Chuck Yeager's Advanced Flight Trainer is available on disk for £16.95. Electronic Arts is based at the Langley Business Centre, 11-49 Station Road, Langley, Nr. Slough, Berkshire SL3 8YN.

SSI Strikes Gold

Strategic Simulations Inc has made a two-way deal with US Gold to market a range of role-playing games initiated by TSR, the firm responsible for the original Dungeons & Dragons, which is enjoying an enormous boom in popularity on both sides of the Atlantic.

No less than six arcade and role-playing disk-oriented games will be released in Easter 1988, with the full backing and expertise of TSR behind them. While SSI will be cooperating with TSR in the States and will be relying on US Gold to market its product over here, the UK company will be cooking up its own programs which will be marketed by SSI in the States.

A futuristic role-playing game will be the first UK-originated game ever to be issued under the SSI label. The deal offers rarely seen opportunities for UK designers to break into the US market. US Gold has described it as "the licence deal of the decade." US Gold is based at Units 2/3 Holford Way, Holford, Birmingham B6 7ZX. tel: 021-356 3388.

▶ ▶ ▶ ▶

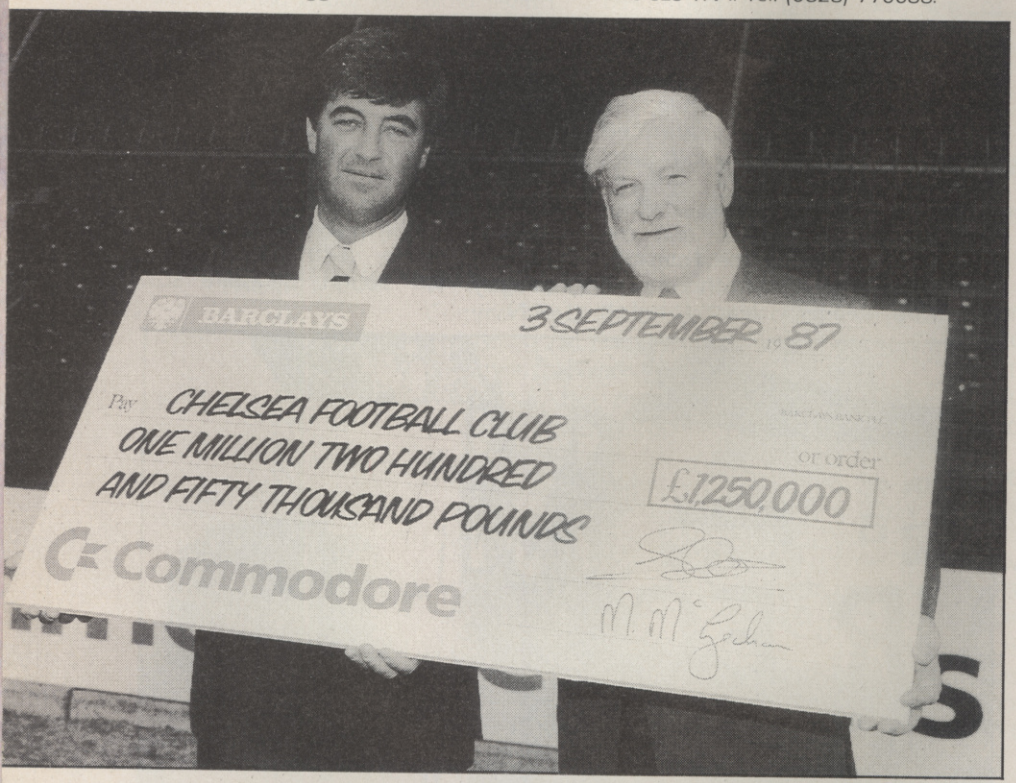
NEWS NEWS NEWS

Commodore kicks off

Commodore UK is coming to the aid of the needy cause of English football. The company is teaming up with that faded, but fabled squad, Chelseas Football Club.

For the next three years, the Chelsea team will carry the Commodore logo on their shirts, following the presentation of a cheque for £1.25 million by Commodore to the club, the biggest deal of this sort in British sport so far. The logo will also be displayed around the home ground perimeter boards.

As well as the advertising, Commodore dealers will be taking advantage of the tie-up through various promotional options. Commodore has also sponsored German team Bayern Munich, and Soviet Dynamo Kiev, and has backed the first professional cycling tour of Britain. Commodore Business Machines operates from Commodore House, The Switchback, Gardner Road, Maidenhead, Berks SL6 7XA. Tel: (0628) 770088.



New life for the C64

Yet another version of the good old C64 is set to hit the home computer market. Commodore is producing a new machine, with a completely redesigned circuit board housed in the old C64 case, as opposed to the low-profile housing of the C64C.

The design comes as something of a surprise, and indicates that Commodore feels that there is still life in the 8-bit micro market, which should please existing C64 users.

The designation and launch date of the new machine have not been announced, but it seems likely that it will initially hit the high streets in West Germany. The redesign may well be good news for buyers, as the reduced complexity of the new board will lead to significantly reduced production costs.

The new C64 has had almost every chip on the board replaced. The only survivors are the 6526 CIA chip and ROM 901225 which contains the character set. It means however that much of the hardware compatibility with the old C64 has been lost. For example, replacement operating system ROMs or RAM expansion banks will have to be completely revamped.

The good news is that the new design shows full software compatibility with the old C64, not surprisingly, as any problems would massively reduce prospective sales. Even cartridges for the expansion port apparently show no problems. Besides being cheaper, the machine should be significantly more reliable, having fewer chips and a more efficient voltage regulator.

Fonts upon a time

Fontmaster 128, a new wordprocessor from US software house Xetec, allows C128 owners to use more than 45 different preset fonts in their copy. It also contains Font and character set creator routines, so that users can set up their own typefaces.

The program can hold a choice of 9 fonts concurrently, and also gives the user access to a full text memory of up to 64K bytes. The System setup module allows a choice of 20 different printer interfaces, coupled with specifications for over 100 different printers, plus selection of screen, text and cursor colours.

The print output in the chosen font, can be viewed onscreen in a special preview feature, and full proportional spacing is used on word-wrap, justification, centering, and right alignment.

Fontmaster also allows a wide range of print effects to be combined. More than 20 pitches and 50 line spacing sizes can be coupled with underlining, condensed text, boldfacing, inversion (white on black), superscripts, and three text heights. An onscreen status display shows a picture of the current font being used.

Fontmaster 128 will also have a 72,000 word intelligent spelling checker coming soon, and can insert graphics into documents.

It costs £45 including VAT and P&P, and a supplementary clip-art disk is also available for £5.00. Fontmaster 128's sole UK distributor is Bytes & Pieces, 37 Cecil Street, Lytham, Lancs FY8 5NN.

Audiogenic's new innings

Audiogenic has produced a successor to Graham Gooch's Test Cricket. The new program is an international version, called Graham Gooch's All-Star Cricket.

All-Star Cricket lets you choose your teams from England, Australia, New Zealand, India, Pakistan, Sri Lanka and the West Indies, and set up their batting and bowling average. The game includes all the features of real cricket such as run-outs, dropped catches, wides, bouncers, full tosses, retired and hurt players, together with sound effects and digitised speech. Action replays will be provided on demand.

Graham Gooch's All-Star Cricket is available on the C64/128 and costs £11.95 for the disk version. It is produced by Audiogenic, 39 Suttons Industrial Park, London Road, Reading, RG1 6AZ. Tel: 0734 303663.

Computer Scrabble

At first sight, it would appear to be a rather futile exercise converting board games to a computerised medium. After all, half the fun is in watching your opponent squirm or chattering away about assorted generalities, something that tends to fly out of the window when you are all hunched up in front of a small screen.

But there are advantages too. The obvious one is that there is no-one else to play against just when you fancy a game. Secondly, there is the problem of differences in skill levels, especially in a game like Scrabble. The game becomes meaningless if one player has a much larger vocabulary than the others or is better at solving anagrams. Then there are all the problems about which would are allowed and which dictionary should be used.

Enter, then, Computer Scrabble Deluxe from Leisure Genius. You can play against up to three opponents of either the human or computer variety. If you select a computer opponent, you can then choose from up to eight skill levels. As a rough guide, a level one opponent will score about 150 during the course of a game while level 8 will amass roughly 350 points.

The computer boasts a vocabulary of some twenty thousand words. These are subdivided into two sections with more obscure words coming into play if you are on levels 5-8. This is a nice touch and works well as it means that beginners are not constantly rushing to their dictionaries to check if the computer is cheating!

Twenty thousand words sounds like an awful lot but if has its limitations. For example, the average Commodore Disk User reader will have a vocabulary of some twenty-five thousand words. Obviously, there are going to be some words that you input that the computer does not know. It will then challenge you and rely on your honesty to say whether or not you are cheating although I can't see many people putting down a word, being successfully challenged and then taking it up again.

By and large, the computer's vocabulary works well. The only reasonably common words that I came across that it did not 'know' were porcine and adze. One levels 5-8, the sort of words that it will use against you are all those tricky little two and three letter words that are so useful when it comes to finding places to attach much longer and higher scoring words.

Examples of words that it will accept are 'yu, hain, jo, ou, nye, oe and uva'. The only one of these that I wasn't too happy about was nye which is obsolete and, depending on which version of rules you are playing to, is not acceptable. All the words used by the program are in Chambers 20th Century Dictionary, the one used for official Scrabble tournaments and very highly recommended if you are looking for a quality dictionary.

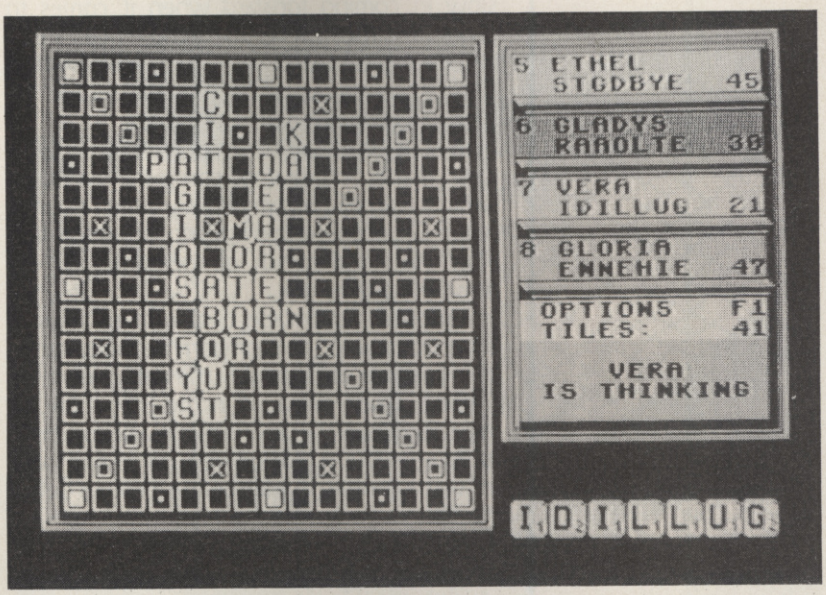
The computer plays a canny game strategy-wise. It will not open the board up for you unnecessarily. Nor will it always make the highest scoring move available to it. If anything, on higher levels, it tends to close the board down as much as possible. This makes it ideal for using all those tricky little two and three letter words that it knows so many of.

Presentation wise, the game is something of a curate's egg - good in parts. The board itself looks drab and colourless and full of strange little symbols to denote the bonus squares rather than the traditional colour coding.

Before you start playing, you can choose from a variety of options. You can decide to have no time limit on thinking between moves or can set a clock anywhere between ten seconds and ten minutes. You can opt to see all the racks or keep them hidden and can watch the computer 'thinking' if you want to.

Placing your tiles involves entering your word and then moving a cursor to indicate where you want it to start from. You can juggle the letters on your rack - a boon if you are hopeless at anagrams and can even ask for a hint if you are really stuck. Partially completed games can be saved and resumed at a later date.

I started reviewing this game convinced that I wouldn't like it but I have to confess that I was very pleasantly surprised by the standard of the challenge that it set me. I felt that its presentation could have been improved somewhat and would only use it if there was no-one else around to give me a reasonable game. That apart, Computer Scrabble comes highly recommended by me.



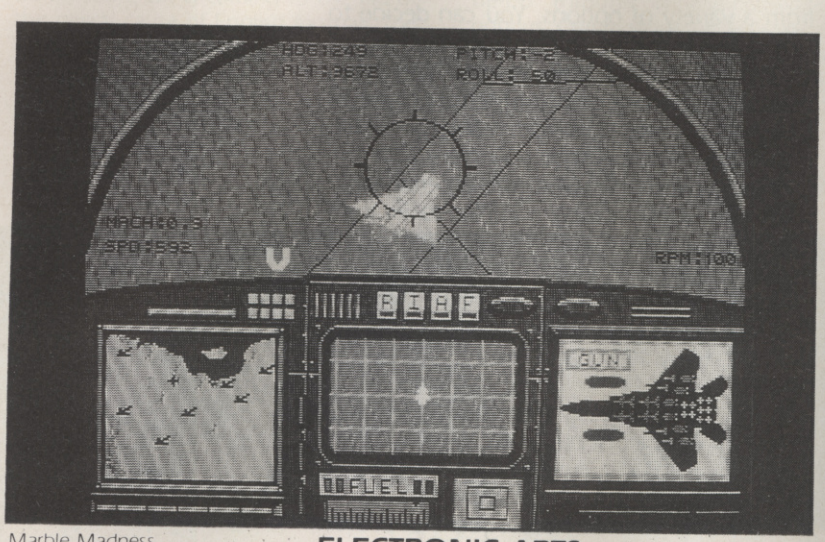
AT A GLANCE

Name: Computer Scrabble Deluxe
Supplier: Leisure Genius/Virgin Games, 2/4 Vernon Yard, London W11 2DX Tel: 01-727 8070
Price: £15.95
Graphics: Board looks very dull
Sound: Don't expect any hummable tunes
Playability: Stick to computer opponents
Addictiveness: Mum's the word (it scores 7)

FEATURE

THE YANKS ARE COMING

Disk software has always been something that American software houses excel at, reflecting the relative maturity of the US market. We take a close look at two of the Yankee giants, Electronic Arts and Microprose



Marble Madness

ELECTRONIC ARTS

The main way that a company is going to make its mark is by the quality of the software that it has on offer. EA are certainly not slow in coming forward when it comes to promoting their name. Thirty three titles are to be released across a variety of formats with a further twenty five to follow fairly swiftly.

Of this initial batch of games, there are nine that are likely to be of interest to Disk User readers. A few of these may well be familiar as they have previously been released when EA licensed the titles to Ariolasoft but after this initial launch, all the games will be new to this country.

Another advantage of this mass launch, apart from raising the company's profile, is that it will reduce considerably the delay between a game being released in the States and it appearing over here. No more will you hear rumours about a brilliant new game and have to wait a couple of years before it comes out in the UK.

The nine games released now should have something that appeals to everybody. Marble Madness is a conversion of the arcade original, a game that inspired a myriad of clones. You must navigate your ball bearing round several tricky 3D course within a set time limit. Apart from falling off walls, there are assorted nasties to avoid and even a hidden screen if you can find it.

If manual dexterity isn't quite your cup of tea, perhaps you would prefer to cross swords with the computer over a chessboard. This is going to be no easy matter though, for the EA program is one of the strongest currently available with an opening library of some 71,000 moves. See else where in the issue for a full review.

Fans of role-playing games are especially well treated. Legacy of the Ancients is a fully menu-driven game in which you play a shepherd caught up in a series of events that you don't quite understand. Viewing exhibits in a museum takes you on a series of quests, robbing castles, searching towns and battling your way through dungeons before employing the services of a winged horse to fly you to a final confrontation.

There are gambling games to improve your finances and training arenas where you can improve your combat abilities - essential when you face some of the horrendous monsters deep within the bowels of a foul dungeon.

The Bard's Tale is totally different in style. Here you must select a party to explore the town of Skara Brae. Your initial aim is one of survival as you strive to gain sufficient experience to take on the evil Mangar. Magic plays an important part in the game as does the Bard's ability to sing a variety of stirring songs - providing that you keep him topped up with ale of course.

Should you eventually defeat Mangar, don't despair that you will never again cleave the skull of a Kobold, for Bard's Tale II - The Destiny Knight is amongst the second batch of games due for release. Fifty per cent larger than the original, your quest this time is to search for the seven parts of the Destiny Wand that has been stolen by the Archmage Lagoth Zanta. There is a huge wilderness to explore as well as dungeons and cities. If that is still not enough for you, there are rumours of a Bard's Tale III being written even as you read this.

Artic Fox takes you to the reaches of the South Pole (no, I don't know why it isn't called Antarctic Fox. The time is the near future and you are at the controls of one of the world's most deadly tanks. Preview the enemy's forces, try a few training missions and then see if you can defeat the enemy in the real thing. The 3D graphics are reminiscent of the old arcade game Battlezone but the game is infinitely more sophisticated.

Sports fans can tee off with World Tour Golf. There are twelve of the world's most famous courses for you to hack your way round and, if that is not enough, you can invent your

own with the full course designer included in the package. All the normal hazards are present - bad lies, bunkers, random winds and wet greens. You can alter player attributes such as driving accuracy and if your shots still aren't going where you want them to, there is always the driving range for that extra practice.

Military strategy features highly in the next two games. In Pegasus, you are at the controls of a Nato hydrofoil with eight different missions to choose from. These start off gently enoughly getting you used to the different weapon systems, both offensive and defensive, available to you and end up with you fighting everything from helicopters to terrorists.

Lords of Conquest is the game for would-be dictators as you try to conquer the world. Playing against either human or computer opponents, your strategy and tactics must be on a global level as you attempt to wage war on enemy powers whilst defending your own territories. This should appeal to anyone who has played the board game Risk.

The final release is a space simulation. You must devise and run a space program with missions lasting for up to ten years. Your first aim is to raise some money in order to finance your program. Loans have to be paid off however so you will need to make some money from trade before you can plough your resources into research. You will need to build a space station, adding extra modules where necessary as you aim to be the first to build lunar bases, space colonies and finally search for signs of life elsewhere in the universe.

The game is based on NASA's plans for the next fifty years and with scenarios lasting up to forty hours each, there should be plenty for any budding astronaut to practice on.

The emphasis on all these games (with the exception of Marble Madness) is that they are not something that can be loaded in for a quick five minute blast. One of the advantages of disk-based software is that huge amounts of data can be stored and retrieved very easily. Consequently, disk-based games can be written on a much larger scale than cassette games. EA have come up with a range of games that you can really get your teeth into. Something like Bard's Tale II is likely to take well over one hundred hours to complete. And when you think of it like that, that means very good value for money indeed.

MICROPROSE

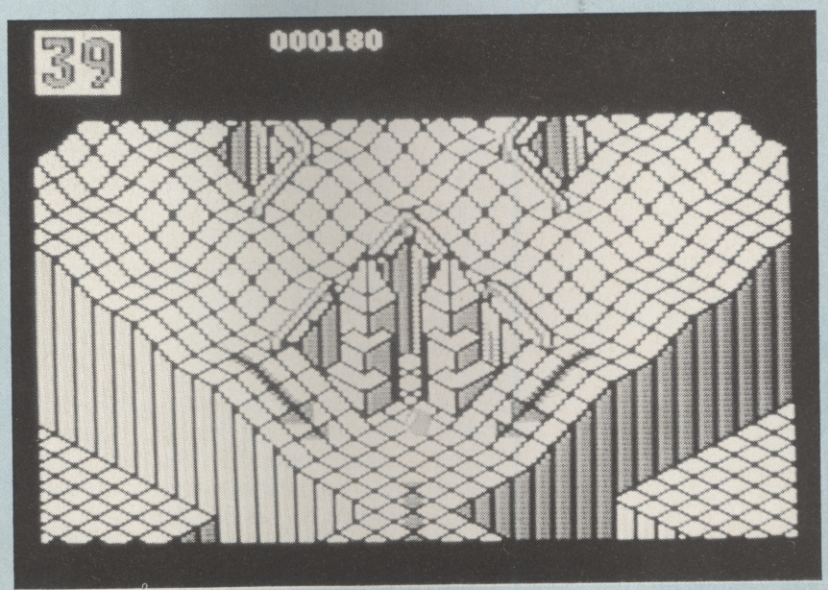
Microprose landed in the UK last year and since then has built up a catalogue of simulations including Gunship and Pirates and signed marketing deals with Origin (Ultima series) and recently Springboard (Newsroom).

Before Microprose went solo their games were available through US Gold and were mainly flight simulators posing new challenges for joystick pilots. Acrojet featured the challenge of sport flying and an aerial decathlon, the risks of flying alone were featured in Solo flight as was controlling the skies in Kennedy Approach. Combat over the Pacific was the central theme of Hellcat Ace, Battle of Britain action in Spitfire Ace and split screen, two player, dogfights over Korea in Mig Alley Ace.

The games are still available on disk and it will cost you £14.95 to get airborne with these.

Would-be battlefield commanders can challenge a Soviet invasion force in Nato Commander (£9.95), refight World War II battles in Crusade in Europe (£14.95), fight Rommel in Decision in the Desert (£14.95) or recreate five crucial battles of the Vietnam war in Conflict in Vietnam (£14.95) (in Microprose's own series of wargame simulations).

My favourite game of the time was Silent Service (£14.95 - Amiga version £24.95). The combination of easy gameplay and the atmosphere of patrolling the seas in a submarine formed an addictive mix that drove me on and on until I'd emptied the seas of Japanese shipping many times over. Silent Service is still one of my favourite games and would feature near the top of an all time top twenty.



F-15 Strike Eagle

Since Microprose went solo it has had a

► ► ► ► ► ► ►

string of hits with the biggest being Gunship (£19.95). Until Gunship flew onto the scene I was a flight simulator sceptic but now I've been converted. The helicopter-based Gunship is remarkably easy to fly which leaves you to work out the tactics you'll use to take out the enemy tanks, infantry, gun emplacements and helicopters before they wreck you.

Bolstered by the success of Gunship, F-15 Strike Eagle (£14.95) made a second flypast in the charts this time with a new scenario in which you must take out military targets in Libya.

Pirates (£19.95) is a change of style and was advertised as an action/adventure pirate simulation. The combination of swashbuckling on the high seas and Microprose's quality presentation, that includes a ninety page instruction book, earned it fame and fortune and a recent Your Commodore Game of the Month award.

Naturally, there's more to come. The next two simulations will be Project: Stealth Fighter which is based on America's new F-19 top secret, radar invisible fighter and Airborne Ranger in which a Commando style game forms just part of the action.

As mentioned in the introduction Microprose UK is more than just Microprose as it also distributes the superb games for Origin and just recently Newsroom from Springboard. Microprose boss, Stuart Bell, hinted at a new American deal so there may be even more on the way.

Origin Systems' claim to fame is the roleplaying Ultima series (£19.95) each). UK fans began exploring the fantastic worlds created by Lord Britain with Ultima III and then IV, distributed by US Gold. You can see how it all started in Ultima I, continue the massive quest in Ultima V (due for release in November) and then complete the series with Ultima II. As you progress through the series the games get bigger and bigger. Ultima III was one double sided disk, Ultima IV is two doubled sided disks and Ultima V is said to occupy both sides of four disks!

However, Origin Systems have other games outside the Ultima series that include Moebius, a mixture of adventure and kung-fu that comes complete with a headband. Autoduel is a combat driving game in which you build a customised car packed with weapons and shields to battle your way across futuristic America. The latest addition in the range is Ogre, based on a superb boardgame. It features battles between armour, infantry, light and heavy tanks, howitzers and hovercraft against a single adversary. However, that adversary is an Ogre, a giant cybernetic tank with a huge arsenal of weapons including massive guns and missiles. The odds may be 30 to 1 but it's a close fight.

INTERVIEW: Electronic Arts

Considering that they are the number one software house in the States, Electronic Arts are relatively unknown in the British home computing industry. All that is about to change. Gordon Hamlett caught up with Trip Hawkins, founder and president of EA to find out how and why.

DU Why have you decided to break into the UK market now?
TH We wanted to establish ourselves as number one in the US first before launching EA in Britain and Europe. We have over 20 per cent of the US market and hope to be in the top five UK software houses by Christmas.

DU What is the disk market like in the UK?
TH Sluggish but improving. Whereas the States is nearly all disk based and Germany about 50 per cent, Britain has some catching up to do.
DU What sort of software will you be concentrating on?
TH There are two main categories. Creativity – desk top publishing, music, video and art packages - and entertainment, meaning games.

DU Are you going to concentrate on any particular type of game?
TH No, whatever comes along. In the States, current game releases are falling into three main areas: technical simulations, sports games and role playing games which are tending to replace traditional adventures. There is an older user base over there and arcade games tend not to do as well.

DU Are prices likely to alter much?
TH Prices of disk based games are falling slowly in the States and it is possible that they will come down slightly here. Most of the games released for the C64 will be between £12.95 and £16.95. There is no budget market in the US like there is in Britain although from what I have seen of the UK budget games, most of them are not fit to be released.

DU Are British designers better or worse than their American counterparts?
TH The British tend to have a more limited outlook largely because they are writing for a cassette based industry. Remember, for most of the new machines, you have half a

megabyte of memory to play with. One area where the Brits are noticeably better is on the question of sound. Americans tend to ignore this aspect of game design.

DU What do you like least about the industry?
TH An easy question. The total lack of hardware standardisation. The Japanese manage to agree on industry standards for cassette and CD formats so why can't the computer industry get its act together?

DU Finally, what do you like doing best within the games industry?
TH Innovating, taking creative risks and using sound to better effect. And anything to do with baseball.

INTERVIEW: Microprose

'Wild' Bill Stealey, 'Fighter Pilot Supreme' and 'Chief Advisor Joint Chiefs of Staff' of US software house Microprose, is a man whose views about software match the sound of his name.

"Microprose produces software for sophisticated teenagers and adults," he explains in his Mid-Western farm-boy accent "and that's the way it's going to stay."

"The American market caters for people who are prepared to spend that little bit more on a game, in the expectation that they will get long-lasting value from it. They don't like Mickey Mouse stuff."

But is the UK market really moving in the same direction? Do the Americans really have the right product for what has been up until now largely a teenage market?

"I really feel the UK is moving our way", said 'Wild' Bill. "In past years, UK software houses have competed in terms of quantity, not quality. There's been a struggle to fill the shops with as much product as possible, much of it of very low quality, with a very short shelf-life. We at Microprose have no intention of competing in terms of quantity. We market a quality product."

"Gunship absorbed eight people years of programming and design work. This is a product for people who have grown up with computers, know what they can do, and expect complexity and good solid programming. We produce the kind of software that we would like to play ourselves."

But given the militaristic and Cold-War tinge of most of Microprose's product, does it really encourage serious thought any more than the latest arcade conversion megazap?

"You really do need some sophistication to play our games. They're not really about how fast the player's reactions are, but about how fast they can think up new strategies" he said.

"Advice for succeeding at Microprose games could be straight out of the USAF Pilot Training Manual. A pilot thinking through a new situation, such as being tailpiped by a SAM missile is advised to take three essential steps: Maintain aircraft control; analyse the situation; and take proper corrective action."

"Whatever one's views of the political attitudes behind Microprose's games, it is undeniable that they look good in action. Was there a price to pay for this?

"Yes, there is an undeniable trade-off between screen presentation and the complexity of the game offered. UK houses have leaned towards appearance. We don't neglect it, but we would rather make sure that the game has more substance than have lots of pretty but useless graphics. We use all the computer's memory space, right up to the limit".

He is proud of the lasting appeal of Gunship, a helicopter combat simulation which had its UK launch earlier this year.

"No one has exhausted the possibilities of Gunship yet. For example, not one UK player has yet received the Congressional Medal of Honour, the ultimate level of achievement, yet. When somebody does, I'll come over personally and shake their hand."

Somewhat out of the usual Microprose line is their latest release, Pirates, an adventure simulation which is all about being a buccaneer in the Caribbean of the 16th and 17th centuries.

"Pirates is a game which is designed to function on several levels. If you don't want to be there all night, you can play and enjoy it for just half an hour. On the other hand, the game has hidden depths for those who want something more." said Stealey.

How does he see Microprose's future in the UK market?

"Well, for a start, we don't aim to turn out games fast. Not one product will be released by us until I personally have played it extensively and I think it's ready. Having said that, we are marketing two products this autumn, Airborne Ranger and Project Stealth Fighter."

'Wild' Bill definitely seems to feel that British punters will take to Microprose's heady mix of complex strategy and 'Blast-the-commies' fast action.

PUZZLE PAGE

Strain your brain with our testing teasers.

Set by Tarquin Binary

Here's your chance to show us what a brilliant lot you are. Not for readers of Commodore Disk User fo we have spot the difference competitions or word searches. No, we believe that we have the most intelligent readers around so here are three Prize Puzzles for you to get your teeth into. The prize for the first correct answer for each puzzle drawn out of the hat after the closing date is one of ten blank disks, so please have a go and enter. I hate composing word searches!

Decoder

Below is a passage of pure gibberish. This is intentionally confused as it's in code. What you have to do is make sense of it all. When you have decoded the phrase, a one word answer should be immediately apparent and it is this word that we want, not the whole phrase.

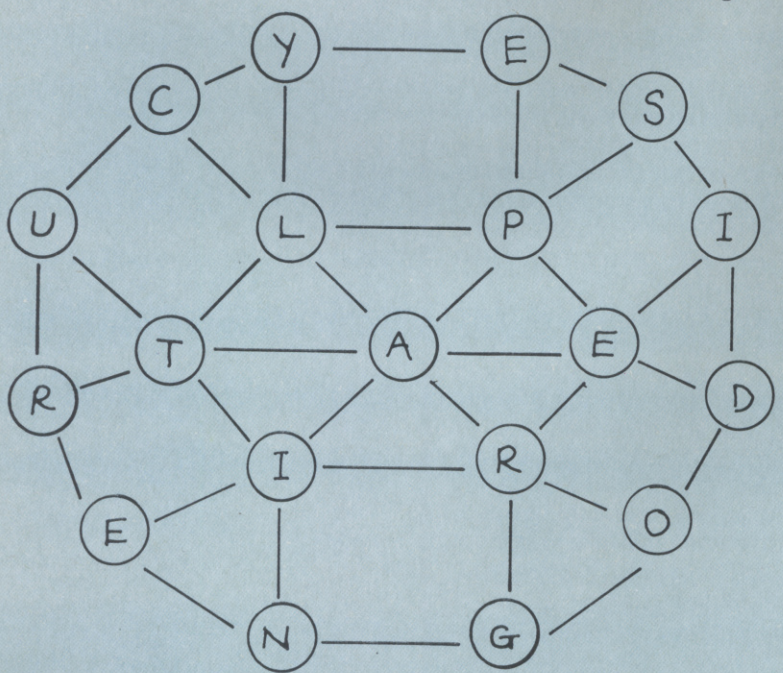
GFVHX PHOUB DAHOV XUBWL RZOBY BUCRO DPLJS IHPXY VQLQX QLLQP REHOH FVXGL XYOBR KHQKB FLGBZ LUALP DXUAY XUH * *

Wordline

Study the grid below. The object is to make as many words as possible of four or more letters. You can start anywhere but can only travel along the draw lines. So you can go from A to P but not from A to S. You can return to letters but cannot use the same letter twice in succession - PAPER is valid but not APPLE.

All words must be in Chambers Twentieth Century Dictionary. No plurals, proper names or foreign words are accepted nor third person, singular parts of verbs ending in 's'. For example, 'reaps' as in 'he reaps the corn!'

When you have finished, put your words in an alphabetical list (it makes for easy marking) and put the number of words found both at the bottom of your list and on the outside of the envelope.



CROSSNUMBER

Here's a crossword, but with a difference. All the answers are numbers. Work out the sums which are based on Commodore machines and peripherals and enter them into the grid below.

An example answer would be 1541 for the well known, snail-fast, disk drive.

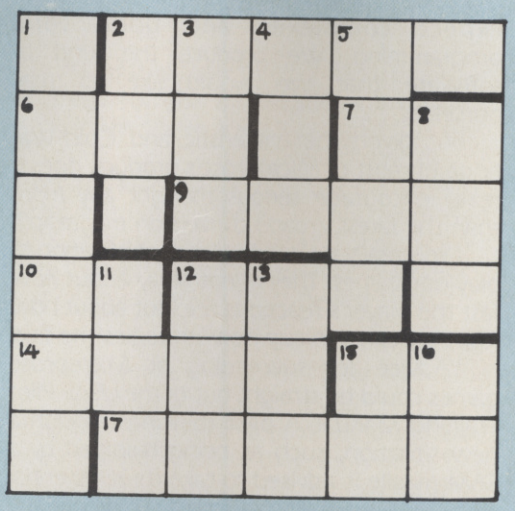
Across

2 disk drive x computer
6 2 down - Amiga
7 a byte out of a computer
9 sum of three Amigas
10 (1/4 computer) - 1
12 a byte out of a computer
14 chip
15 perfect number
17 free bytes on 64

Down

1 (printer - computer) squared
2 (disk drive - disk drive) squared
3 printer
4 printer - computer
5 printer + disk drive + computer
8 printer + printer - computer
11 printer - (1/2 computer)
12 scoreless computer
13 computer + spotty dogs
15 INT (1/3 computer)
16 square printer ends

Closing date December 31st 1987.



KEEPING YOUR DRIVE ALIVE

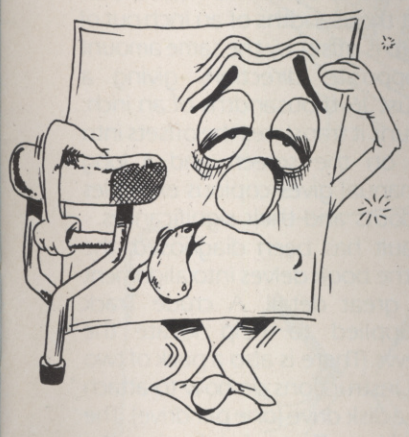
At last a new handbook tells you how to really care for your poor old disk drive

By Eric Doyle

For the past few years I've been sharing my house with a stranger. Occasionally, we haven't been on speaking terms but normally the dialogue has enriched my life... until recently. Suddenly the mood changed. My friend refused to respond. How could I revive someone who had meant so much to me? The Abacus came to the rescue.

No, it's not Commodore Disk User meets Mills & Boon but an everyday tale of computer folk. Considering that I put so much trust in my disk drive, I do seem to take the old groaner for granted. The 1541 Repair and Maintenance Handbook is the book that all caring 1541 owners have been waiting for. It's packed full of hints and tips on how to keep your drive in tip top condition and how to diagnose any electrical problems which may arise.

When drive failure hit my household, the reponse to my request for a load was the SEARCHING FOR message from the computer but no sign of life from my disk drive. A dead disk drive and being faced with the prospect of paying over £30 for a repair job that I could do myself was almost too much to bear. If only I knew more about what makes the disk drive drive disks.



Abacus are the publishers of many informative books on the Commodore 64 environment, especially that excellent disk drive book, The Anatomy of the 1541 Disk Drive. Excellent it may be but it has more to do with the computer's memory than its actual physical make up, perhaps it should be called the Psychology of the 1541! For my present needs the 1541 Repair and Maintenance Handbook has much more to do with my drive's current problems. Here is all that I want to know to get my drive up and running at maximum mechanical efficiency, after tracking down what has gone wrong electrically.

The most common problems with a disk drive occur as the mechanical parts wear in and begin to wear out. Alignment is a much harder problem to solve on a disk drive than it is on a cassette and special programs are required to get the disk back to par.

Acknowledging this, the whole of the first part of the 1541 Handbook is dedicated to a disassembly of the motor drive. Here the differences between the various incarnations of the drive are explained with hints on how to deal with problems exhibited by the older models. One of the most common of these was a loose stop ring screw which was varnished in on later models but caused real headaches in the earlier ones. The Handbook explains the evolution of the present ring, gives diagrams to help you identify which one your drive has and how you can safeguard its reliability.

The back of the book has a series of programs to help cure misalignment problems and to correct the speed. The alignment program needs a specially created disk, so the time to get this set up is now before your drive goes out of alignment! Another suggestion is that you save your test programs on tape. Think about it, how are you going to load them if your drive's not working?

For some of the tests in the book an oscilloscope is desirable but for most of the mechanical tests a voltmeter is all you need. When it comes to testing the circuit board a logic probe is also needed.

The electronics section is very good indeed. It starts off with a simple course in elementary electronics and basic logic circuitry. Although this is not going to turn anyone into an electronics engineer overnight, it does clarify a few of the basic principles in a concise manner.

Next comes a Cook's Tour of the 1541's circuiit boards pointing out all of the landmarks, their history and purpose. At each point the book explains the correct testing procedures and expected results.

Towards the end is a section entitled Fault Finding. What a disappointment this was. No tables of faults, causes and cures, just a few short paragraphs stating that the culprit for electrical failure is usually the CIA chip in the C64. This is followed by a throw away line about a 74LS14 chip or something, and that's fault finding!

I can say without fear of contradiction that this is the book on 1541 maintenance but not just because it's the only book. Reinhold Herrmann has created a well structured maintenance manual as much for the layman as it is for the engineer. The sections are logically structured and it is a fairly light read considering the weighty nature of its contents.

Herrmann has succeeded in removing the cover from the 1541 to let the light shine in.

How about a C64 manual next?

AT A GLANCE
Title: 1541 Repair & Maintenance Handbook.
Author: Reinhold Herrmann.
Publisher: Abacus Software, C/O Precision Software, 6 Park Terrace, Worcester Park, Surrey KT4 7JZ.
Price: £9.95.

SLIPPED DISKS

Where can you turn when your disk drive won't?

By Norman Doyle

Unlike a fine wine, age does not improve a disk drive. As time passes the drive's whine improves but its performance falls until the day when everything fails to load.

Nine times out of ten the fault is caused by alignment or speed problems and can be easily remedied if you have the correct equipment and an alignment disk. A disk drive is a precision piece of equipment and the alignment disk has to be equally precise to be of any use. This means that alignment kits don't come cheap.

Robtek's Magic Disk Kit contains a program/alignment disk and a cleaning disk. This means that to use the kit, you have to have access to a working disk drive.

After a rather lengthy loading sequence the screen displays a five item menu. From this you can elect to select a device number from 8 to 12, execute the speed test or the alignment test, clean the drive's read/write head or return to Basic.

Assuming that you've had to borrow another drive to load the test program, you will have to change the device number of your test drive from its default value, using the method outlined in the disk manual. A facility to do this from the Disk Kit software would have been appreciated. The program can then be directed to the test drive by using the first menu option.

The next thing to check is the rotational speed of the disk. After selecting this option the screen clears and the axes of a graph appear. The program then does ten consecutive tests and maps them on the graph. The fact that the graph ought to be an histogram need not concern us too much, after all, a continuous line graph looks so much more dramatic, doesn't it?

The real point of this test is to calculate an average speed result which has to fall within the range 299 to 301rpm. Any results outside this range need to be corrected according to the instructions in the small, but beautifully formed, manual.

The booklet may only measure about 75x60mm but it's packed with useful information. Apart from showing the speed adjuster inside the drive, it also gives hints on maintaining your drive and permanently changing its device number, atttempting to recover faulty disks and how to test for and correct any misalignment.

If the disk drive still fails to load programs reliably after the speed has been corrected, it's time to run the alignment test. This positions the head-driving stepper motor to a sampling point and if it's the expected header all is well, program then reads in the track header at that point and if it's the expected header all is well but if not an adjustment is necessary.

The sampling points are spread over the disk in three groups of three tracks on the rim, centre and inner edge of the disk (tracks 1-3, 17-19 and 33-35). For accuracy the disk supplied has half tracks so the test also checks these, giving 15 sampling points in all.

The manual again accurately describes how to reset the stepper motor to its optimum position.

Let's Get Physical

The 1541 Physical Exam from Evesham Micros is more expensive, but more accurate, package from America.

Like the Robtek kit, there is a speed test which samples the speed ten times and takes an average. The result is then stored and printed out on the alignment test screen when it is run.

At first sight the Radial Alignment screen may indicate a less discerning test than that from Robtek. Only three tracks are indicated (1,16,35) but these are carefully created on the disk. Each sampling track has a strange arrangement of its sectors. Each successive sector is progressively displaced from its expected position by a thousandth of an inch. Even valued sectors are displaced on one side of the optimum line while the odd sectors are displaced to the other side. This means that sector 15 is eight thousandths of an inch out of kilter and track 16 is offset by the same amount but in the opposite direction, giving a bandwidth of just 16 thousandths of an inch.

As the test runs it translates the offsets into graphical form on the screen and a long section of the manual gives copious examples of possible readouts and their significances.

Once the fault has been diagnosed, the back section of the book delves into alignment adjustments in great detail. A crude Track Indicator is supplied to help locate the adjustment screws. There is also a pack of two quiet stops and instructions on how to attach each of them to a disk drive (one per drive). The quiet stop has the effect of softening the hammer blows when the drive is sent on a track zero location jump. This is the action which normally produces those heart-stopping, and potentially damaging rattles on some disk protection systems or when an unreadable disk is encountered. With the new stop fitted, this noise is reduced to a kittenish purr.

Verdict

Both of the alignment kits were easy to use and required a modicum of commonsense but no technical skills. The Robtek Magic Disk Kit is

not as accurate as the Physical Exam but should keep your disk drive reading and writing sufficiently well.

In my tests on the systems, the Robtek registered a clean bill of health for a drive which failed to meet the Physical Exam's more stringent parameters. Despite the OK from the Magic Disk Kit, the drive was still hammering against its stop every time a disk was accessed, even though the drive was otherwise performing well. The Exam's test indicated a badly adjusted stop and proved to be correct in its diagnosis. One up to the Physical Exam.

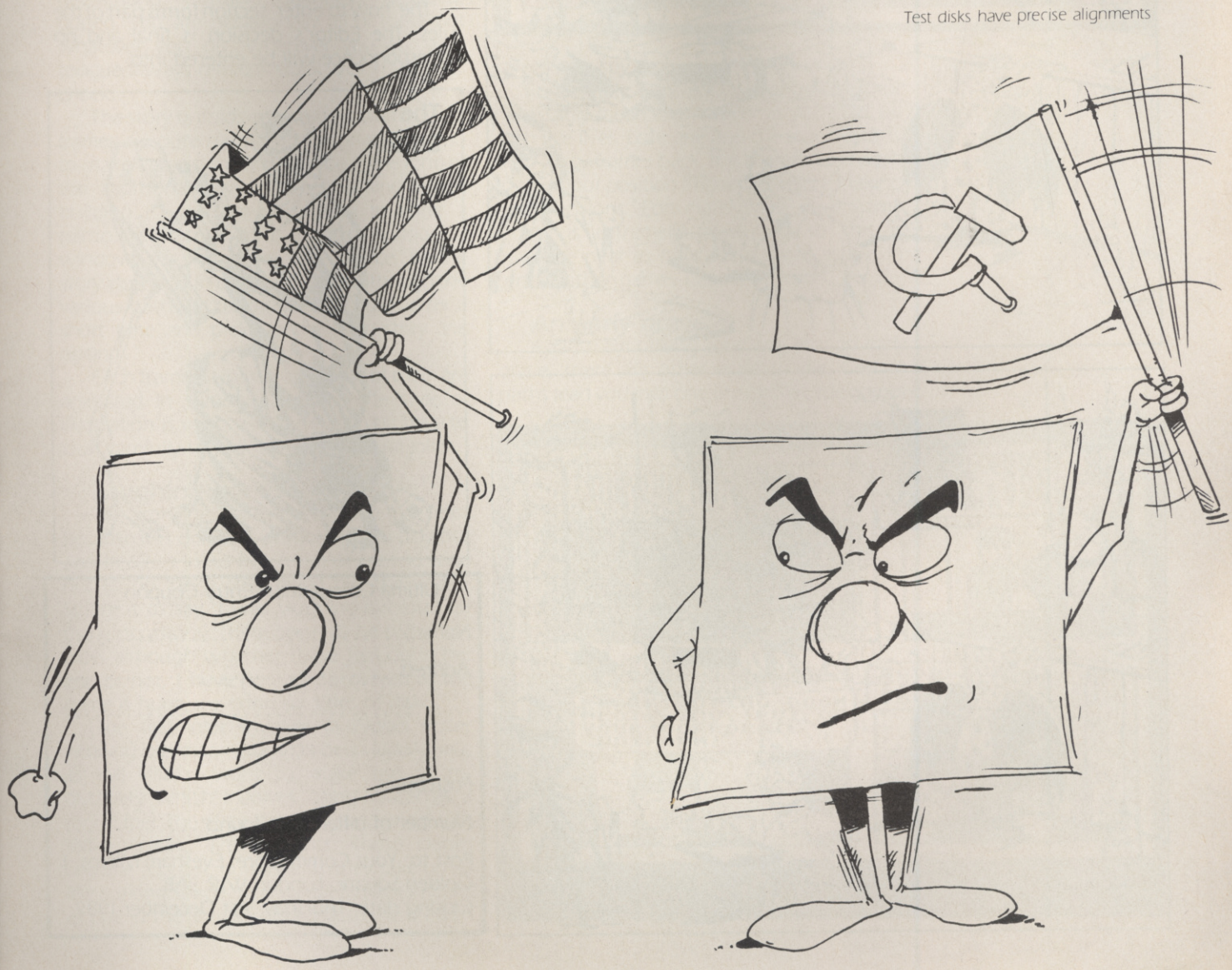
My livelihood depends heavily on having an operation disk, so for me the 1541 Physical Exam is an essential for those working Sundays when everything seems to go wrong! For most people the cost of the Robtek Magic Disk Kit will be the crucial factor and their package shoud cope well on the few occasions when the drive needs tweaking back to performance level.

As often happens with reviews of this kind, the final decision is yours and the crunch question is: how vital is your disk drive to you and how highly do you value your peace of mind?

AT A GLANCE

Product: 1541 Physical Exam
Supplier: Evesham Micros, 63 Bridge Street, Evesham, Worcs W11 4SF Tel: (0386) 41989
Price: £39.95
Product: Magic Disk Kit
Supplier: Robtek Ltd., Unit 4, Isleworth Business Complex, St John's Road, Isleworth, Middlesex TW7 6NL Tel: 01-847 4457
Price: £14.95

Test disks have precise alignments



COMPETITION

WIN AN ULTIMA SET

10 sets of Ultima I, III, IV and V must be won.

When Ultima III made its way across from the States the computer press went wild, and the follow up Ultima IV also received wide acclaim. Commdore Disk User is pleased to team up with Origin Micro Systems to offer our readers the chance to win one of ten sets of Ultima games, including Ultima V which is only just due for release.

How to enter

Presented here are two cartoons. There are a number of differences between them (I like Spot the Difference even if Tarquin Binary doesn't). Once you have decided how many differences there are, complete the entry form and send it to the editorial address (see below). Write the number of differences that you have found on the back of the envelope. If you don't your entry will not be accepted.

The first ten correct entries pulled out the hat after the closing date will receive a complete set of Ultima I, III, IV and V for the Commodore 64 on disk.

The rules

Entries will not be accepted from employees of Argus Specialist Publications and Origin Micro Systems. This restriction also applies to employees' families and agents of the companies.

The 'how to enter' section forms part of the rules. The Editor's decision is final and no correspondence will be entered into.

The Editor

Ultima Competition Entry Coupon

Name .....

Address .....

.....

.....

Postcode .....

Number of differences found .....

Post to: Your Commodore, Evesham Micros, 1 Golden Square, London W1R 3AB.
Closing date: Thursday 31st December 1987.

COMICS

At last, the Computer Comic. Gordon Hamlett reports on the latest offering from Accolade.

With a single bound, Jack was free. Roy dribbled the ball round two defenders and thumped it into the back of the net. Golly Batman, it's lucky I had my acid-proof underpants on. Hand over the Smarties Walter or I'll set Gnasher on Foo-Foo.

Comic book heroes every one of them and how many of us haven't dreamed of filling their roles occasionally? Sporting superstar, ace detective, playground pest or just plain ole superhero, saviour of the universe.

Comics from Accolade not only lets you read the story but you can actually take part in it as well. Not only that, but the story itself changes every time you play it depending on the choices that you make during the course of a game.

Keene as Mustard

You play the part of Steve Keene - Private Spy. Dynamic, dastardly, dashing, daring, dull, devastating, dipstick, dauntless, despised, duped, you are occasionally all of these but whatever you do, wherever you go, your tongue always remains stuck well inside your cheek.

The story unfolds one frame at a time. Most frames are pure narrative but some invite you to make a decision. This may be in the form of the appropriate wisecrack, choosing which building to visit, or even how to enter a particular place - eg through the door or window. As you make your choice, so the story develops in different ways, although the various paths all tend to merge again after a short time and pick up the main story line again.

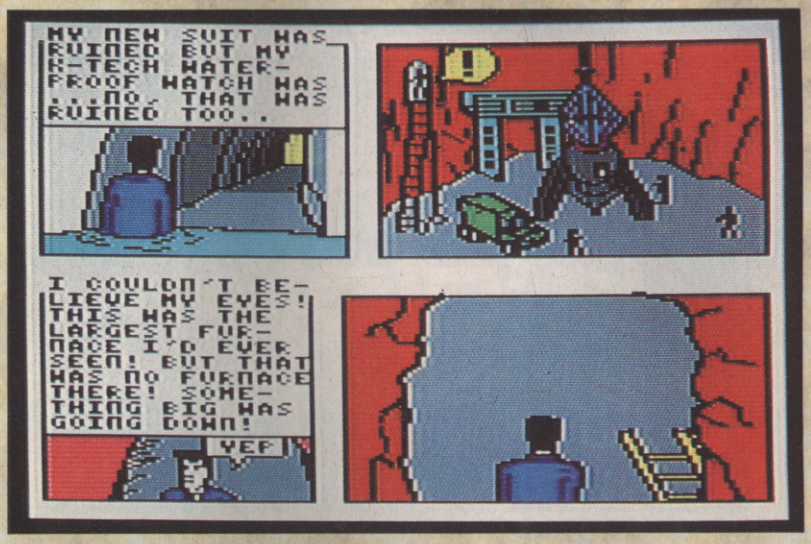
Each frame is unique and most of them are animated in some small way. The style of illustration is very well done and you have to look carefully to pick up all the visual jokes.

Laughing out loud

The storyline defies description, not least because it is different every time you play but also because jokes taken out of context tend not to be funny to anyone but the writer. Suffice it to say, I was laughing out loud on many occasions. There seem to be two main plots although whether these join up in the end or not, I have not yet discovered as the game is huge, covering six sides of disk.

The first plot involves a Nobel Prize-winning professor who has been kidnapped, as evil villains want to make use of his discovery which involves using water as a rocket fuel. The second story is concerned with self-replicating fire hydrants. These clones become a public nuisance as they take up all the parking spaces (it is illegal to park in front of one in the States) and confuse the firemen no end.

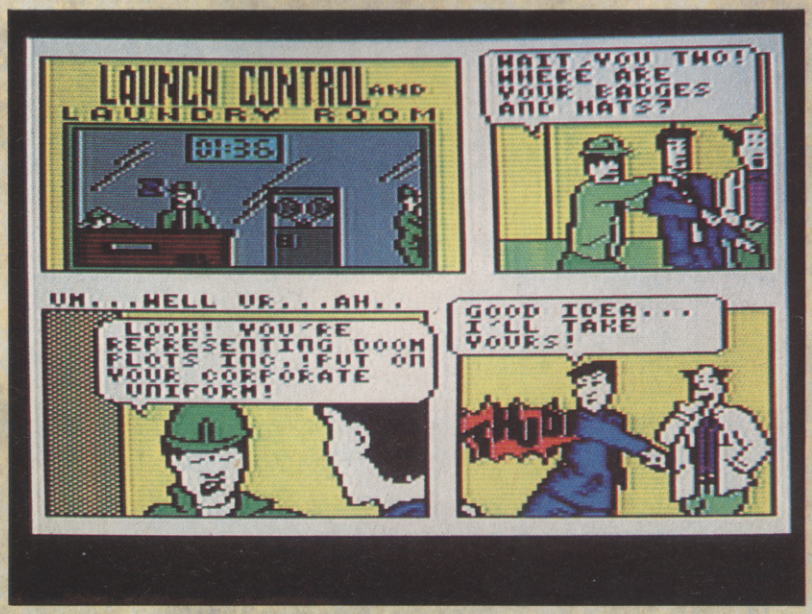
Although it is very much in your nature to give smart alec replies on every occasion, there are times when people (usually although not always the baddies) take exception to your wisecracks and decide to terminate your career as a spy with extreme prejudice.


MY NEW SUIT HAS RUINED BUT MY K-TECH WATER-PROOF WATCH HAS ...NO, THAT HAS RUINED TOO..
I COULDN'T BE-LIEVE MY EYES! THIS WAS THE LARGEST FUR-NACE I'D EVER SEEN! BUT THAT WAS NO FURNACE THERE! SOME-THING BIG WAS GOING DOWN!
YEP

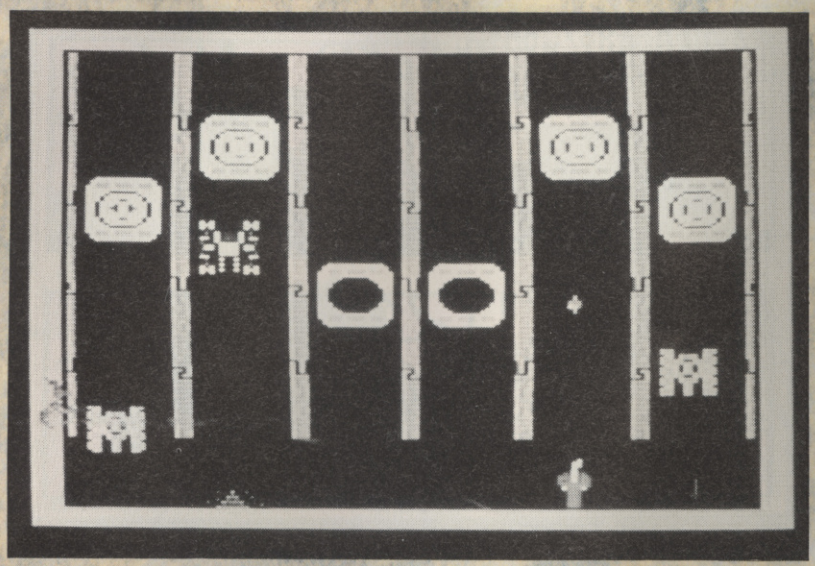
Fortunately, an early death does not necessarily mean Game Over as you start off with five lives. Lose one and the story restarts from a few frames back. It is therefore sensible to save your position frequently before making odd decisions. Fortunately, the save game facility is extremely rapid and so this is nowhere near as much of a chore as it is in certain other games I could mention.

An early grave

Apart from talking your way into an early grave, there are other ways to die. Certain paths lead you into one of eight arcade games


LAUNCH CONTROL AND LAUNDRY ROOM
01:36
WAIT, YOU THO! WHERE ARE YOUR BADGES AND HATS?
UM...WELL UR...AH..
LOOK! YOU'RE REPRESENTING DOOM FLOTS INC.! PUT ON YOUR CORPORATE UNIFORM!
GOOD IDEA... I'LL TAKE YOURS!

where you have to fight for lives. These games usually occur when you have been caught by the baddies (very painful) and they are trying to dispose of you. As is usual in all comics, they never do the obvious thing and just blow your brains out but insist on feeding you to the sharks or whatever. (As a digression, my favourite line from the movies come from the film of Batman. The Penguin tells our hero that he will die by 'being thrown seven miles out to sea where you will land on my exploding octopus').



The aforementioned sequence with the sharks involves Keene clinging to a grid of bars. There are five keys to be collected before he can open the door to escape. The only problem is that the bars he is clutching on to have a nasty habit of dissolving away leaving you clutching at thin air before dropping down to provide a quick bite for a relative of Jaws.

Choosing your escape route is always tricky and there will come the time when you climb through a window only to find yourself on a narrow ledge. There is a fire escape but it is patrolled by two hostile robots. These can be destroyed by kicking some conveniently placed bricks onto them but you must still make your way to the roof where hopefully, a friendly helicopter is waiting to pick you up.

An underground river poses another problem. As you swim along, you can gulp air from the occasional pocket that has become trapped under the roof. All you have to do is make sure that it is not poisoned. Then there are only the electric eels and killer turtles to avoid.

Killer robots

Robots are a popular theme and one scene involves you being stuck in a series of corridors full of metal monsters of a most unfriendly nature. Only by bombing their power supplies can you render them inoperative although you can also gain temporary relief by exploding a robot itself. All you have to do then is make sure that you don't walk into the piles of radioactive waste.

Men throwing switches feature in the next two games. In the first, you are trying to get into a series of lifts that will eventually lead to your freedom. The floors consist of a series of red and blue trapdoors. At the top of the screen, the villain, a certain Arlo 'Red' Spunky throws a switch opening all the doors of the appropriate colour. The second game has a similar theme. Here, you are trying to leap onto a series of conveyor belts. Throwing the switch reverses the direction of the belts with Arlo hoping to catch you unaware and plunge you into a vat of molten lava below.

Jetpack is a shoot-em-up where you destroy a number of, surprise, surprise, rampaging fire hyrants. These release robots who again are not overly concerned about your well being. Will your rapid fire laser cannon be enough to protect you?

The final game and my favourite is called Bomber. Arlo is perched on a platform of bricks, casually lobbing bombs at you. Fortunately, you managed to pick up a dustbin lid en route and with skilful manipulation, you can use it to deflect the bombs back up to explode against Arlo's wall. The other hazard in this game is Arlo's pet rat that runs in and out of the drainpipes. Unless you want a savage (and fatal) nip on the ankles, you must leap over him while still dodging bombs.

Practice makes perfect

All these games can be practised beforehand although one extremely annoying feature is that after the practice has finished, you canot replay the sub-game without reloading the main program.

Comics is an excellent idea very well implemented. My only reservations about it are that I am not sure how often you would go back to it once it was completed and the price of it. Even for three disks, I feel that a lot of people will baulk at a price tag of just under thirty pounds.

AT A GLANCE

Name: Comics
Supplier: Accolade/US Gold. Units 2/3 Holford Way, Holford, Birmingham B6 7AX. Tel: 021-356 3388
Price: £29.95
Graphics: Bright, colourful and well animated
Sound: The tunes get very repetitive but can be turned off
Addictiveness: You will want to play it through but may not go back to it
Playability: Some of the arcade games will need practising

MENDING YOUR DISKS

Disks are reliable, but they can, and do, go wrong. With our help, you should be able to repair them.

By Burghard-Henry Lehmann

Over the years the floppy disk has established itself as the most reliable storage medium for computers. Unless you do something pretty outrageous with your disks, like use them as beermats at your local or take them with you to open day at the electricity generating board where they are demonstrating their latest high-powered cutout switches, it is very unlikely that any of your data will ever get corrupted.

Problems with disks are much more likely to arise because of the good old human error factor. For example, how often have you scratched a file by mistake? All you need for this to happen is a number of similarly named file, and before you know it, a major file containing a whole day's work has gone!

But, if you have noticed your mistake quickly enough and haven't yet saved anything else, don't despair. In reality nothing very much has gone. All it takes is a minor operation with the right piece of software, like a disk editor.

What it does

A disk editor (like the one which is part of my disk utility Directory Designer and which I will use in this article as an example) gives you access to each sector on a disk separately. From Basic you can only load a file as a whole into the computer. A disk editor allows you to load the elements of which a disk consists, namely the sectors, and individually modify them.

Tracks and sectors

A disk works very much like an LP - the contents are recorded onto tracks and the tracks are subdivided into sectors. You've got a similar thing on a record which contains, let's say, a symphony by Beethoven. Each movement is on a track which can be clearly distinguished visually. The advantage of this is that compared with a tape recording, if you want to skip the first and second movement, you can go straight to the third by putting the needle onto the beginning of that track.

Of course, with your disk drive you do not physically move the read/write head, which is the equivalent of the needle of the turntable, to the track which you want. Most of the time you don't even know on which track a file starts. Nor do you need to know!

With computer disks all this is done by the Disk Operating System ("DOS") which is basically a computer operating system residing inside your disk drive. You just enter the file you want and the DOS does the rest.

It finds the file name on a special track on the disk - the director track - from which it learns where on the disk the recording of the file starts, that is, the first track$sector.

The rest is done in chains - at the beginning of the first sector of the file, which the DOS loads, there are two bytes which tell it where the next sector is, and at the beginning of that next sector it gets told where the sector after that is, and so on, until it reached the last sector of the particular file which has to be loaded.

A Commodore disk is formatted into 35 tracks. Containing 63 sectors in all, and each sector holds 256 bytes. In fact, when you list the directory of an empty disk it tells you that there are 664 blocks or sectors free. This is because the directory track is not counted.

Of course the outer tracks contain more sectors than the inner tracks, since a disk gets the smaller the closer you get towards its center. Therefore, track 1, which is the outermost track, contains 21 sectors (or blocks, as they are also called), while track 35, which is the innermost track, contains only 17 sectors.

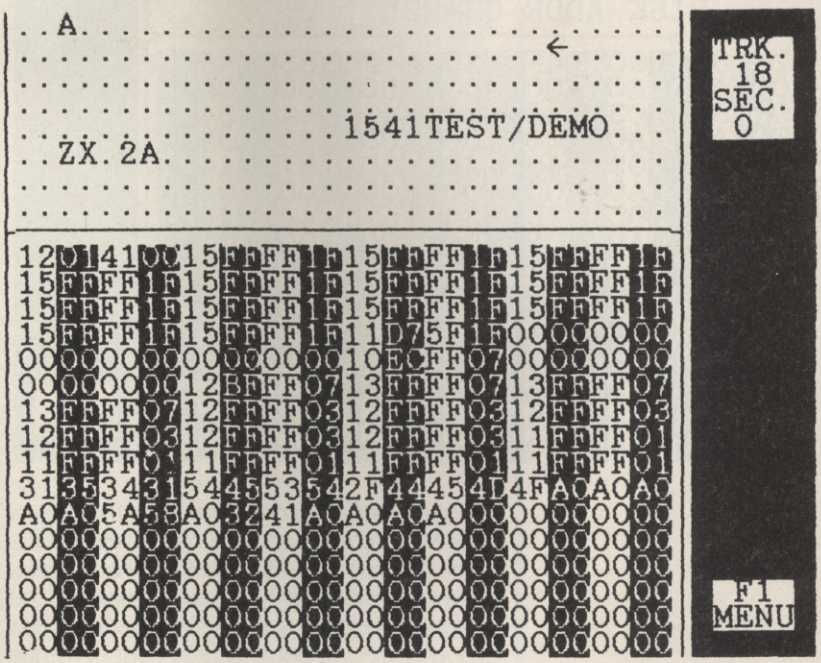


FIGURE 1

Note also that Commodore numbers the tracks on a disk in a slightly abnormal way, as far as computer go: Tracks are numbered from 1 to 35. There is no track 0. On the other hand sectors are numbered in the more usual fashion, that is from section 0 upwards.

Track 18, which contains 19 sectors, is always the directory track.

The Directory Track

The Directory Track is the most important track on any disk. It's like the reception desk of

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a government building: Here the DOS gets all the information it needs to load or save files.

If it wants to load a file, the Directory Track tells the DOS if the file is on the disk at all and, if so, where it is, as I've described above.

If it wants to save a file, there is an important area at the beginning of the Directory Track, called the Block Allocation Map ("BAM"), which tells the DOS which sectors (or blocks) on the disk are free, that is, can be used for further recordings.

Unscratching a file

But let's return to the mishap we took as our example, where we have scratched a file by mistake.

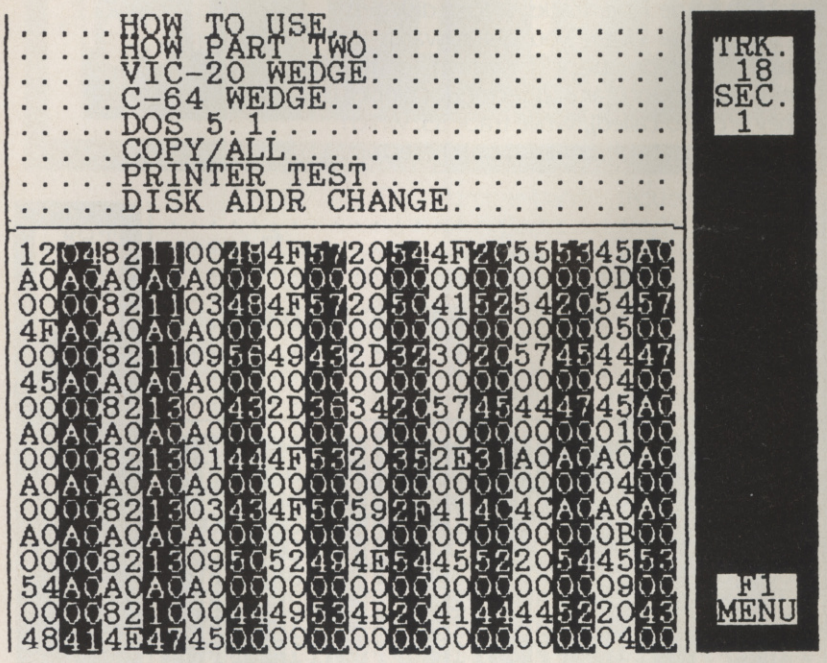

FIGURE 2

Scratching a file does not mean that it gets deleted or erased at all. As a matter of fact, when you scratch a file, nothing whatsoever is done to the file itself. Not even the name of the file in the directory is erased. All the DOS does is to change one single byte in front of the file name.

This byte tells the DOS what a particular file is. For example, 130 ($81) stands for a sequential file.

If you scratch a file, the DOS writes a zero into this file-type byte. That is all there is to it. (Well, not quite all, because the DOS also marks that the sectors used by this file as being free on the Block Allocation Map. But this isn't of much concern to us here.)

So we can unscratch a file very simply by changing the file-type byte back into a regular file. (To get the BAM updated all we have to do it validate the disk. Validating a disk makes the DOS go through all the files. It then updates the BAM according to which of the files are marked as existing and which are marked as scratched. This is where a disk editor comes in handy.

A close look at a sector

A disk editor gives you access to each sector on a disk separately.

What happens is that you tell the program which track/sector you require and then it downloads this sector into a buffer and depicts its contents on the screen.

To do this with the disk editor which is provided with "Directory Designer" first press F5 to enter the disk editor itself. Then press "L", for "load sector". Now you will be prompted to enter the track and the sector you want.

It might be a good idea if we test this on the Commodore test disk which most of you will have. If you follow the instructions I give you no harm should come to your test disk. But to be on the safe side, make sure that the write protect notch of the disk is covered.

Let's first load the beginning of the directory track of the test disk. To do this enter "18" and "0" respectively. Now track 18, sector 0 will be loaded by the program.

Figure 1 shows you how the disk editor depicts this sector on the screen.

The display is split into three parts: The upper part shows the data contained in that sector displayed as ASCII text. The much larger bottom part shows the same bytes in hex notation, and on the right hand side there is a third area which tells you the track/sector currently on display. Some of the empty space will be used for further information later on when you operate the editor.

If you already know how to use a monitor you shouldn't have much trouble understanding this kind of layout. Simply think of a sector of a disk as an area of memory in RAM or ROM. The only difference is that the data you see is recorded on a disk.

The disk editor has loaded the contents of the sector into a buffer. The advantage of this is that you can make an many changes to the contents of this sector as you like without the actual recording on the disk being changed. Only at the end, when you are dead certain that you did all the right things, can you instruct the disk editor program to save this sector onto the disk and with it the changes you have made.

A closer look

The first two bytes of a sector always point

to the next sector to be loaded, in a chain of sectors which make up a file. In figure one, one of the first two bytes points at track $12 (+decimal 18), sector 1.

This is the only case where the next sector is the actual next numbered. Normally sectors are chained in steps of three in the case of the directory track, and in steps of ten on all the other tracks of the disk. The reson for this is that it is more convenient for the drive head to make jumps of that kind.

The last sector of a file is signified by the first pointer byte being zero (remember, there is no track zero) and the second pointer byte telling the DOS how many bytes of that sector are used. The rest of the sector is considered as garbage and ignored by the DOS.

Returning to Figure 1 next you see the Block Allocation Map 1 have already talked about. It would be beyond the scope of this article to explain exactly how the BAM works. I can tell you that if one of your disks has become so corrupted that you want to attempt to re-write the BAM by hand, you might as well forget it and scrap the whole disk, unless you are a machine code whizz-kid.

The entry following all those $1F's of the BAM is much more interesting to us: This is the name of the disk or,as it is also called, the directory header.

The name itself - "1541TEST/DEMO" -, is represented as the usual ASCII bytes, and this is followed by the disk identification number, which in this case is "ZX 2A".

Now let's get the next sector of the directory track of the test disk. We could do this by pressing "L" and then entering Track 18 Sector 1. But the disk editor program provides a more convenient way: Simply press "N" for "next sector" and it will load the sector we want, using the information in the pointer bytes which I have already described.

Figure 2 shows you sector 18/1 of the test disk directory. And there you see that the first two bytes do not point to track 18, sector 2, but Track 18, Sector 3. In other words, the sectors are chained in threes, as I've explained above.

The next byte - $82 - is the one we are most interested in, namely the file-type byte. In this case it tells you (and the DOS) that the file named "HOW TO USE" is a program file.

The next two bytes tell the DOS where the file starts on the disk. "HOW TO USE" starts on track $11 (=decimal 17), sector 0.

The follows the filename itself. If a name is less than the maximum permitted 16 characters in length, the rest is padded out with shifted spaces, that is, $A0 (=decimal 160).

Next follow 9 zeros, which mean, as you might have guessed, nothing, and the last two bytes of the second line tell you how long a file is.

"HOW TO USE" is 13 ($0D) blocks or sectors long.

This finishes the first directory entry in figure 2. All the other directory entries are formatted in just the same way, and as you can see, one sector is able to hold 8 directory entries.

Modifying a byte

Let's assume now that "HOW TO USE" has been scratched by mistake, which would mean of course that the third byte in figure 2 would contain a zero.

So what we want to do now is to use the disk editor to change that byte back into a proper file byte, let's say $82 (=decimal 130), which stands for program file.

First we get the editor program into the modifying mode. You do this by pressing "E" for "edit sector". Now a flashing cursor has appeared at the first byte. Notice that there is also a white cursor which highlights the corresponding byte in ASCII-representation. Furthermore, on the right hand side of the display a window has appeared showing the value of that byte in decimal.

Now bring the cursor to the third byte, which we want to change, by moving it along with the help of the cursor right key. Of course, in our example the file type byte is already $82, which is the correct byte. But, for the sake of the exercise, scratch the file by entering hex $00 (you have to enter data in hex!) and then un-scratch it again by entering $82.

As I've said already, all this is only done in a buffer. That is, so far we haven't changed anything on the actual disk.

So the final step of our operation would be to instruct the program to write the changed sector from the buffer to the disk.

To do this press "W" for "write to sector". Since the following action is quite radical in that it will change the contents of the disk, you will be asked if you are certain. If yes, press "Y", and the sector will be saved onto disk in place of the old one. If no, press "N", and the program will return to the sector display without any action being taken. This is all there is to it!

If you list the directory of the disk you have changed in this way, you will see that the file has indeed been reinstated, because it's listed again.

As a final step it is a good idea to validate the disk in order to get the DOS to re-write the BAM so that, if you save a new file, it won't use

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the sectors of the file which has been scratched by mistake. (With "Directory Designer") you can validate a disk by getting int the disk command mode and entering "V".)

Other usages

There are all sorts of other useful things you can do with a disk editor.

If you want to be absolutely certain that you don't scratch a file by mistake, you can protect it against accidental scratching. This is a worthwhile facility the Commodore DOS offers, but which is very little documented and unfortunately not accessible from Basic.

Again, it involves the file-type byte. All you have to do is to add 64 to the file-type and write that number in place of it. For example, a program file ($82 - decimal 130) would become $C2 - decimal 194.

Later, when you list a directory which contains protected files, each protected file will be marked with a "<" to show that it is a protected file.

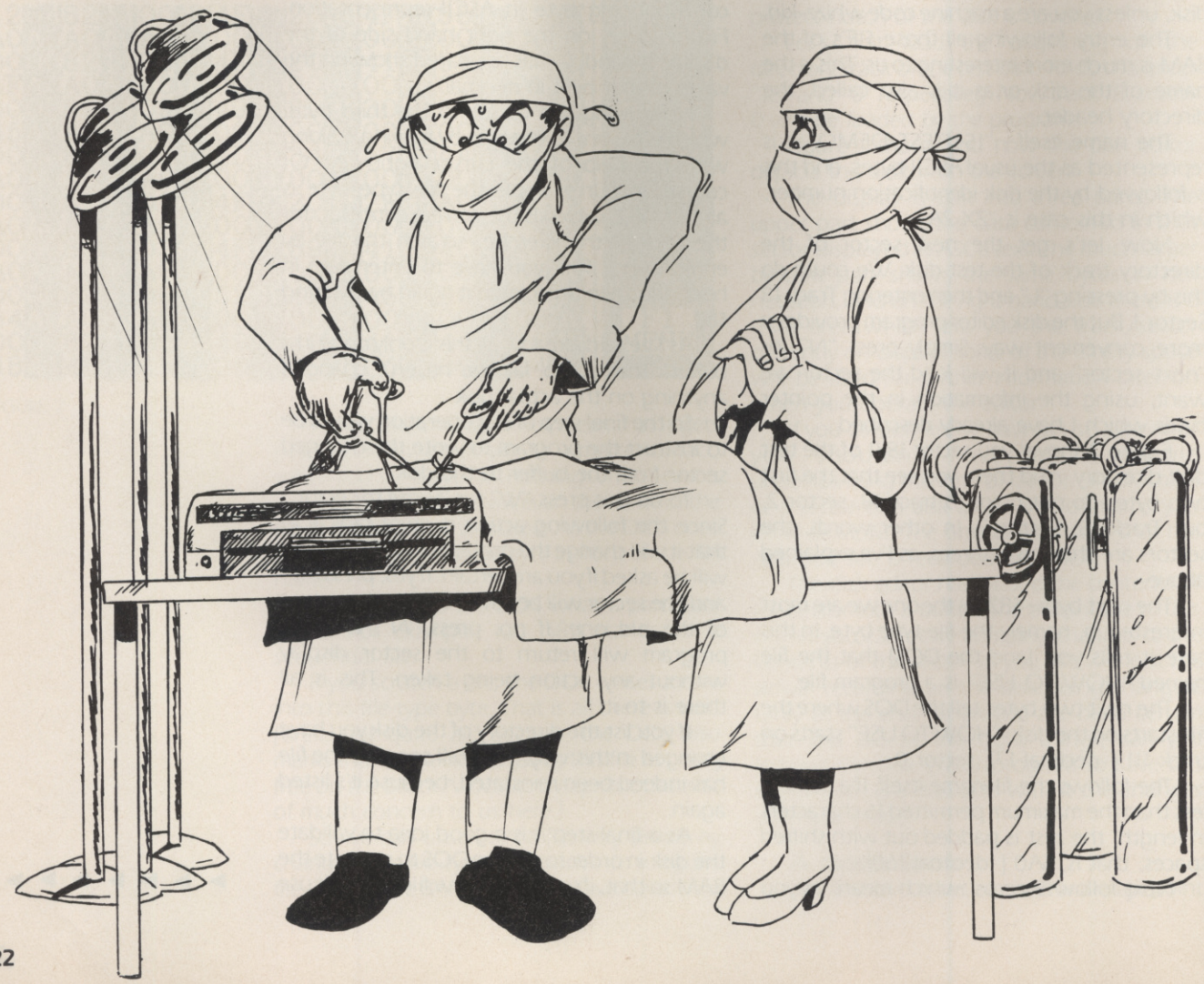
There are all sort of other ways in which you can use a disk editor to manipulate the contents of a disk directly. For example, you could change the name of a file directly.

To do this kind of thing easily the disk editor provided with "Directory Designer" has a second modifying mode which allows you to enter text directly into the upper part of the screen display. To start this off press "A" for "ASCII-modify".

You can also use the disk editor to change the loading address of a file, that is the location in memory where the file will be loaded, which is $0801 in the case of all Basic programs. You'll find this address at the beginning of the first sector of a file, just after the two pointer bytes.

Finally, you might use a disk editor to change the data on a disk so that certain files can't be pryed into by unwanted persons. That is; you can build protection mechanisms into a disk.

This is a very wide subject indeed and far beyond the scope of this article. But remember, if you can use a disk editor to create this kind of protection, your happy neighbourhood hacker can use a disk editor to crack it!



DIRECTORY DESIGNER

Sort out your disk with this versatile and powerful disk utility

By Burghard-Henry Lehmann

The Commodore DOS is extremely versatile, but like the operating system of the Commodore 64 computer there is much more to it than is accessible to the Basic programmer. As always, Commodore have a knack of packing lots of goodies into their machines and then hiding the best of them from the user.

Not even the manual which comes with your disk drive lets you in on the whole story. In the end, the only way to make full use of your disk drive is by investing in advanced manuals and then writing programs which reach the parts of the DOS that Basic doesn't reach.

Directory Designer is such a program. It helps you to do all sorts of house-keeping chores on your directories quickly and easily. You can move directory entries to different positions, insert separating lines or extra remarks in between entries or sort all the entries of a directory alphabetically. All this will make it easier for you to find the files you are looking for later on.

Furthermore, Directory Designer allows you to scratch and unscratch, and protect and unprotect files with a minimum of fuss.

The main menu

On loading from the menu, you are presented with the main menu of Directory Designer. On top of the screen, in reverse, you find the actions of the function keys which allow you to switch from the main menu to the directory (F1 and F3) and also to the disk editor (F5) which I will describe later in this article.

All other commands are activated simply by pressing the highlighted key.

Loading a directory

Put the disk whose directory you want to load into the drive. Then press "L". As you can see from the menu, this stands for "Load Directory".

Your disk drive should now start to hum (I hope that your disk drive hums when it is working and isn't making any other disturbing noises...) and after a few seconds the directory will appear on the screen.

You can toggle between this printout of the directory and the main menu by pressing F1 and F3 respectively.

On top of the screen you'll find the directory header and the disk identification. Next to it, is the advice to press F1"*" if you want to look at the main menu page.

Underneath it are two large boxes where the directory entries are listed. Each filename is printed in reverse. This is to signify that it is an unscratched file which can be loaded, as opposed to a scratched file which cannot be loaded.

Unlike other such programs I also wanted to show the scratched files. To distinguish them clearly from the unscatched files they are printed in normal. (In a minute I will show you how you can recover a file like this if you wish.)

Next to the first file you'll find a flashing cursor. This is the main cursor of the program. You can move it up and down and left and right with the cursor keys, until you come to the end of the directory.

The screen can hold 44 entries. If your directory includes more entries than that (the maximum number of entries Directory Designer will permit is 144), a new page will be opened automatically whenever you move the cursor further than the screen limit - either down or to the right. Moving it up or to the left will recover the former page. You cannot move the cursor beyond the last entry.

Entries

Each entry consists firstly of the name of the file. As I've said before, if it is an unscratched file, it is printed in reverse. If it is a scratched file it is printed normally.

At the end of the name you'll find the type of file "P" which stands for "program file", "U" stands for "user file"; and "R" stands for "relative file". If a file has been scratched you'll get a "D" for "deleted file".

If this identification letter is printed in reverse, it means that the file is protected against scratching. "Not a lot of information", you might say. But there is more:

X-raying an entry

Press "X", which stands for "X-ray entry", and you'll get an information box which gives you the name of the entry you have chosen, the start track and sector of it on disk and the length of the file in blocks.

If you wanted to examine matters still further you could press "Y" which would carry you straight into the disk editor and load the first sector of the file. But we don't want to do that right now. Instead we press "N" for "No" which makes the information disappear.

Editing a filename

Now let's make some changes to the directory you have loaded. Please note, that all changes you make have no initial effect upon the actual directory on disk. Directory Designer loads each directory into a buffer and all changes you make are only done in that buffer. Only when you use the "S" for "save directory" command will the actual directory on disk be changed. So don't worry about experimenting freely with Directory Designer! If you don't like what you've done you can always reload the original directory from disk

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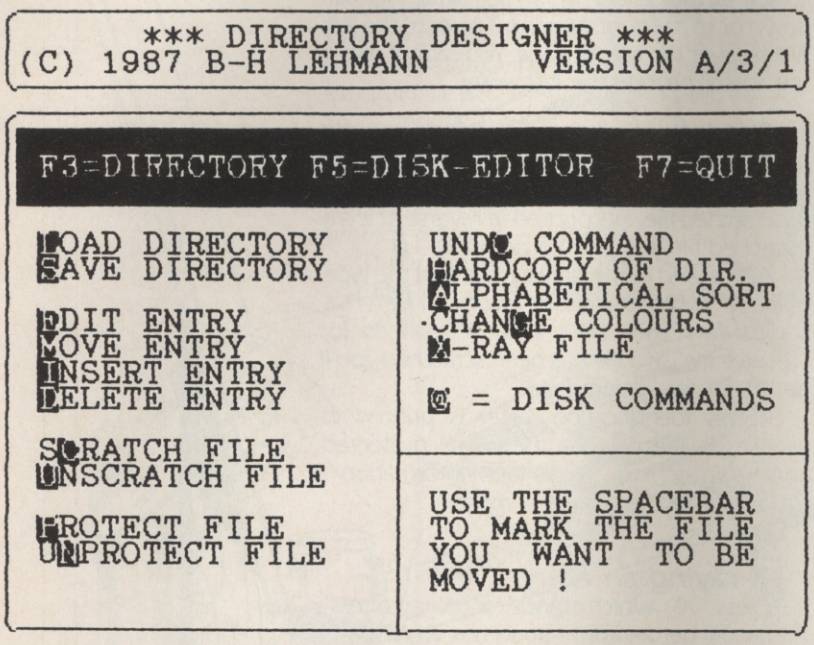
and start again. Northing on the disk will be spoiled!

First of all you can edit an entry. Bring the cursor to the entry you want to edit and press "E". This is to signify that you are now in the beginning of the entry and changed into an "E". This is to signify that you are now in the editing mode and can enter whatever you like. When you are finished, simply press Return.

You can edit the header and disk-identification in the same way, simply by moving the cursor next to it and pressing "E".



Inserting a line

Or you can insert an extra line after an entry: Press "I" for "insert line" and type whatever you want to be inserted, be it a separating line (e.g. a line of shifted "*") or a remark. Don't worry about the entry underneath being overwritten. It will not be lost as you'll see!

When you have finished, press Return as before, and the line will be inserted while the entry underneath will be recovered above it.

If you X-ray the insert you'll see that it has been entered as a sort of ghost file. That is, it is zero blocks long (because there will be no such file on the disk) and it is always positioned at track 18, sector 18.

Furthermore, these inserts are always marked as a sequential file, which is really of little relevance since, as I've said already, the file doesn't really exist. Nevertheless, it will of course show up whenever you list the directory, be it from Basic or from another program!

If you want to get rid of an insert, you can delete it by pressing "D". This facility is meant for such unwanted inserts. If you use it to delete a file, the file would have been gone for good. Therefore, if you don't want a file anymore, scratch it as described above. A scratched file can always be unscratched!

Scratching and unscratching

You can scratch the file next to the cursor by pressing "C". This results in the filename being printed normally and the file being marked with a "D" for "deleted file".

Again, don't worry about the finality of this action! Remember, so far it's only done in the buffer. Only when you save the directory will the file be marked as scratched on the disk, and even then you could recover it again, unless you have saved a new file in the meantime.

Any file that has been marked as scratched can be unscratched. Simply press "U". Now a requester will appear, asking you what type of file you want the unscratched file to be. Type "P" for "program file", "S" for "sequential file", "U" for "user file", or "R" for "relative file". If you are not quite sure what all this means, study your disk drive manual again. It's still good for something, you know!

Protecting and unprotecting

To protect a file means making it safe against accidental scratching. This is a very useful facility the DOS incorporates, but for which there are no instructions in Basic.

With Directory Designer you can protect whatever file you wish by pressing "P", and once you have saved the directory you can't scratch that file by accident. If you list the directory from Basic you'll find a "<" after each protected file, and within Directory Designer a protected file is indicated by the file type being printed in reverse.

Directory Designer also allows you to unprotect a file for scratching. Simply press "N". Now the file-type letter will revert to normal, signifying that this file can be scratched.

Moving entries about

In the normal course of events directories have a habit of becoming rather confusing. This is because each new file is saved by the DOS after the last file, or, if a file has been scratched, in place of the scratched file. But this original order does not have to be kept, because when it loads a file it does not matter to the DOS where in the directory the file is placed. All the DOS needs to know is where a

file starts on disk and this information is stored in each directory entry before the filename. So you can move file entries about as much as you like.

To move an entry, first place the cursor next to the file you want to move. Then press the space bar. This will highlight the entry. Now place the cursor to where you want the entry to be moved to. Then press "M" for "move file". Now the file you wanted to be moved will have been placed underneath the file where you put the cursor.

Alphabetical sort

You can have all your file entries alphabetically sorted by pressing "A". This will result in a sort in ASCII order throughout, as listed on your C64 manual on pp135-137. This means that if a file starts, for example, with an "$" or a number, it will be placed before the letter "A", while entries starting with a graphic character will be placed after the letter "Z".

If you are not happy with the result of this action, or any other action you have taken, press "O" for "undo". Now everything will be restored as it was before you took the last action.

Saving the directory

If you are happy with what you've got on screen and want your directory to be finally saved onto disk, press "S". Since saving a directory is a pretty final act, you'll be asked if you are quite sure about it. If not, press "N", and no action will be taken.

If you are certain, press "Y". Now the directory will be saved. This means that files which you have scratched will be truly scratched and files which you have protected will be truly protected.

Afterwards you will be asked if you want to validate your disk. This is a good idea, especially if you have scratched files with the help of Directory Designer. Because validating your disk makes the DOS rewrite the BAM (the block-allocation map) which is at the beginning of each directory, the DOS will know in future that it can write any new file over a scratched file. In other words, validation makes new space available on a disk.

You can get a hard copy of the directory in Directory Designer by pressing "H" for "hard copy". The printout will be formatted in two columns to make use of the 80-column line which you get with most printers.

Executing disk commands

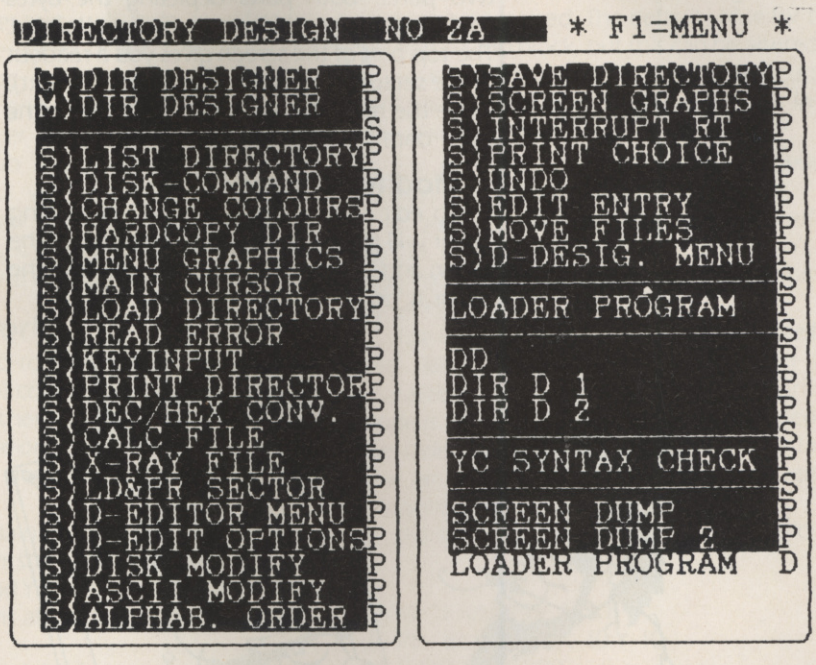
This option lets you execute all the disk commands which you get from Basic with the "OPEN 15, 8, 15" command. If you press "@", you'll be prompted to enter whatever disk command you want to give.

For example, if you type "I" and press Return, the disk in your drive will be initialized. For more about these commands consult your disk drive manual.

If you enter "$" you will get a listing of the directory as it will be listed from Basic.

Changing the screen colours

Directory Designer allows you to change the border, paper and ink colours to suit you.



Press "D" for "change colours" and you will be prompted to give the border colour you require, then the paper colour, and finally the ink colour.

If you don't want to change a particular colour, simply press Return. Otherwise enter the number of the colour you want (e.g. "06" for blue - please, enter a single digit with a trailing zero!). After you've pressed Return, the colour you have chosen will be installed immediately.

At the end you will be asked if you are satisfied with your choice of colours. If not, press "N", and the process will be repeated. If yes, press "Y".

The disk editor

Directory Designer includes a versatile sector editor which allows you to load any sector of your disk into a buffer, modify it and then save the modified sector onto the disk.

There are two ways in which you can enter

the disk editor: Either via the "x-ray file" command or by pressing F5. If you enter the disk editor from the "x-ray file" command, the start sector of the particular file you are looking at will be loaded automatically. You can then look at it (and at the subsequent sectors of that file, with the "N" command), modify it, return to the directory designer or remain in the disk editor and look at other sectors. Depressing F5 again will carry you back to the Directory Designer.

The editor screen

The screen of the disk editor is split into two parts, both parts depicting the bytes contained in the disk sector you have loaded. The top part of the screen gives you a readout of the sector in ASCII-characters (that is, text), while the much larger bottom part shows the same data in hexadecimal.

Modifying data

To edit data in hex, press "E". A flashing cursor will appear in the bottom section of the screen and on the right hand side, the byte the cursor is on is echoed in decimal.

To move the cursor use the cursor keys as usual. Notice that there is also a non-flashing white cursor in the ASCII section of the screen which moves along with the flashing cursor. This allows you at all times to see at a glance the text equivalent of the hex byte the cursor is on.

Loading a sector

There are several different commands to load a sector from disk. If you are not satisfied with the modifications you've made, you can reload the same sector from disk by pressing "S", or you can get the "next" sector from the disk by pressing "N". This means the sector which the DOS would load in next when loading a file. For technical reasons this is never the immediate next sector, but always ten sectors on. For example, if you've just loaded section 3 the "next" sector would be sector 13.

The first two bytes of each sector tell you (and the DOS) which is the next track/sector to be loaded. Therefore with the "N" command you can load all the sectors of a file in succession. (When the last sector of a file has been reached the track byte will be zero, and since there is no track zero, the DOS will know in this way that this is the last sector of a file. As far as the disk editor is concerned, once this final sector has been reached, the "N" command will automatically be disabled.)

If you press "L", you are prompted to type in the trace and sector number of a specific sector you want to load.

Writing to a sector

By pressing "W" the sector will be saved on to disk. This means that the former sector will be overwritten, that is, all the modifications you've made will be installed on the disk.

Because this a pretty final step to take, there is a safeguard. Before it writes to disk the program asks you if you are sure that is what you want.

ON THE DISK

TEXT ENHANCER

Text screens don't have to be boring. Soup up your program presentation with this suite of Basic routines.

By Steven Hammond

If you have written a Basic program that makes extensive use of text, then wouldn't it look a lot more interesting if you could print the text in different ways, rather than relying on just a boring old PRINT statement?

Well I thought so, so I have written a Basic sub-routine to do just this. The routine allows you to vary the speed at which text will be printed, with or without keyclick noises. It will also provide a moving cursor of various types to go with the printout if you wish it.

Text Enhancer also provides a special effects to improve text presentation. You can specify that the text will fade in different colours, and the speed of this can be varied. Text can also be faded out. A fast fade in and/or out will give you a flash effect.

Text Enhancer will provide you with a demo if you run it from the Menu. More importantly you will want to merge the routine with your own Basic programs (see box). To do this, it is necessary to have some idea about how the program works.

How it works

The main sub-routine is at line 50000, and can therefore, of course, be called by GOSUB 50000. Two further sub-routines at lines 1010 and 1000 provide one-second delay loops. The latter combines the delay with a clear screen function.

To use the main routine, first place the text to be printed in string A$. Variables X and Y contain the X and Y coordinates of the text and string P$ contains all the format parameters for the printout.

An example of the format string P$ would be "WU1U00". Each character represents one output parameter.

The first character specifies the colour that the text will be printed in. The full set of colours is not used for reasons that will be explained later. Permissible values are:

W White
B Blue
G Green
R Red
Y Yellow

The second parameter tells the routine whether or not the text is to fade. A 'U' here will provide an upward fade, a 'D' a downward fade, and 'N' no fade at all.

The fade uses different shades of the same colour. This is why the full colour set can't be used. With an upward blue fade, the text is first printed in blue, then light blue, then cyan, then white. Not all colours, for example brown, have corresponding light shades.

Parameter three simply tells the program whether or not to underline the text. A 1 here will provide underlining, a zero will mean none.

The fourth parameter takes the same range of values as parameter two, but the fading effect now applies to the underline, if present.

The fifth flag is another on/off switch. It specifies whether or not the text is to be printed all at once, or one letter at a time, teleprinter style, and the values are zero or one. One turns on the teleprinter effect.

The sixth and final parameter toggles the moving cursor on and off, depending whether a one or zero is used. The default value for the cursor is a solid block, but this can be altered. If you want a different character for the cursor then you put the appropriate character in P$ after the six parameters.

For example, P$ as "WN0N11 *" would provide an asterisk cursor.

If fade is used on text, the teleprinter effect cannot be enabled, and the cursor can't be toggled on without that effect. It's all common sense really.

The delay variables are very useful. The first one, BD, stores the delay between the characters being printed when teleprinter mode is enabled. Variable D is a delay used for the fade. Finally setting variable S to a 1 will give an audible click between characters in teleprint mode.

An example call of the routine would be:

```
10 A$="EXAMPLE TEXT"
20 P$="BU0N00":X=10:Y=10
30 GOSUB 50000
```

Merging it in

To merge the routine into your own program, it is necessary to reset the Start of Basic locations in your C64 to the end of your current program. You can find where your current program ends from PEEKing in locations 51 and 52. You then set the Start of Basic locations, 43 and 44 to these values and perform a non-menu LOAD. Once the routine has loaded, you POKE 01 into 43 and 08 into 44 to get your original program back.

LOADING THE ROUTINE

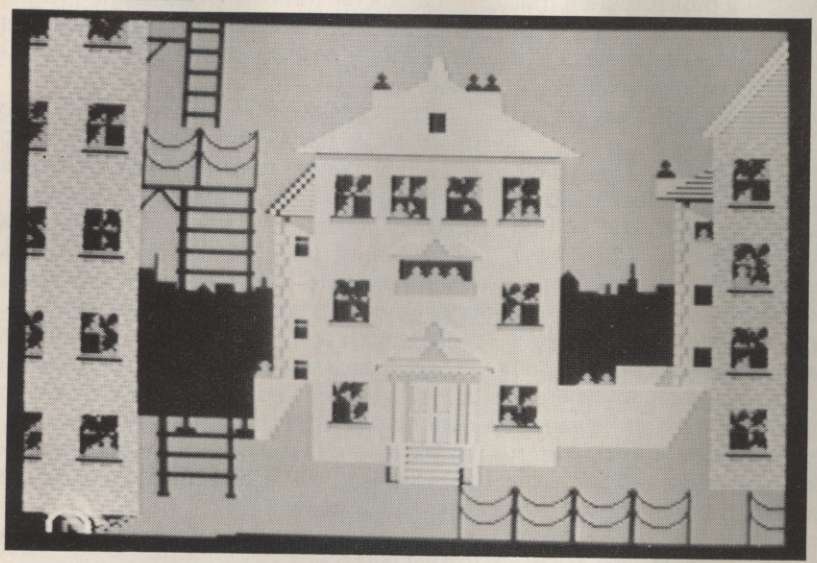
The Printer is in two parts. To load outside the menu, LOAD "TEXT ENHANCER", 8 followed by RUN will run the demo, and LOAD "TXT ENHANCER.SUB", 8 (no 'E') will just load the sub-routine.

ON THE DISK

MOBSTER

Can you manage a gang of Chicago hoods without getting plugged in the back by your own side? This game is literally murder.

By Richard Beaven



Mobster is a fast, furious arcade strategy game set in the dog-eat-dog world of 1920s Chicago. As the boss of a small gang of disgruntled thugs, your ambition is to claw your way up the slippery ladder of organised crime by taking on business opportunities, or should one say organised massacres, that come on offer from day to day.

The strategy decision screens in Mobster are very user-friendly. They use a joystick-pointer system, so you just point and press to select an option.

Getting the scam

The game opens on the Information screen. This does not allow you to input any commands, but just displays basic information about the gang. Your gang starts with:

3 members
2 shotguns
15 packets of drugs
1 limousine

The gang's overall morale is 5, and each member is being paid $15 per day. Your total starting capital is $500.

Money makes the underworld go round. This is what you're trying to gain, and once you've got it you can spend it on weapons, paying off gang members, new limousines to carry them, and drugs which can be pushed at a profit or used.

To get money, you must take on one of the 'jobs' on offer, or sell some of your stock of drugs. Every day, four different jobs are on offer. To view these, select the VIEW JOBS option using the pointer. A specimen job might read:

JOB £1 TAKE OUT A MINOR MAFIA DRUGS RING ON 44TH STREET FOR $2407

Mafia hoods are moderately skilled and therefore hard to go up against. The other options are police, the most difficult, and civilian, the least. The size of the operation; small; minor; large; or major determines the number of snipers you must shoot to gain control and complete the job. The fee, of course varies with the difficulty of job.

Bonus payments

If you complete a job, various bonuses may be awarded. Knocking over the drugs ring, above, would award you extra drugs. A protection racket will get you extra money, a headquarters; extra gang members and an

operation; extra weapons. You don't always get the bonus.

To accept a job, you select one from the View Orders menu. Just point to the job you want and press fire. This menu also allows you to buy and sell drugs and issue them to the gang, and purchase other things such as weapons and cars, providing you have the money. You can also increase the gang members' wages, if they are getting restless.

When you have selected a job, you can choose the resources you wish to devote to it, including gang members and limos. Remember you can only get six gang members in one limo. You can also select how many weapons to use. These can be shotguns or submachine guns. Submachine guns can fire faster, but are more expensive and use up more ammo.

Into Combat

After selecting and equipping your force, you proceed to the combat choice screen. This allows you to Attack or Retreat. After every attack you return to this choice, but to attack you must have hoods and weapons left. Retreating without completing the job may badly affect morale.

Selecting Attack will get you into an arcade shoot-out. You will be faced with a view of the buildings holding the operation you are trying to take out. The enemy snipers will pop up in windows and on roofs, and you must shoot as many of them as you can as fast as possible.

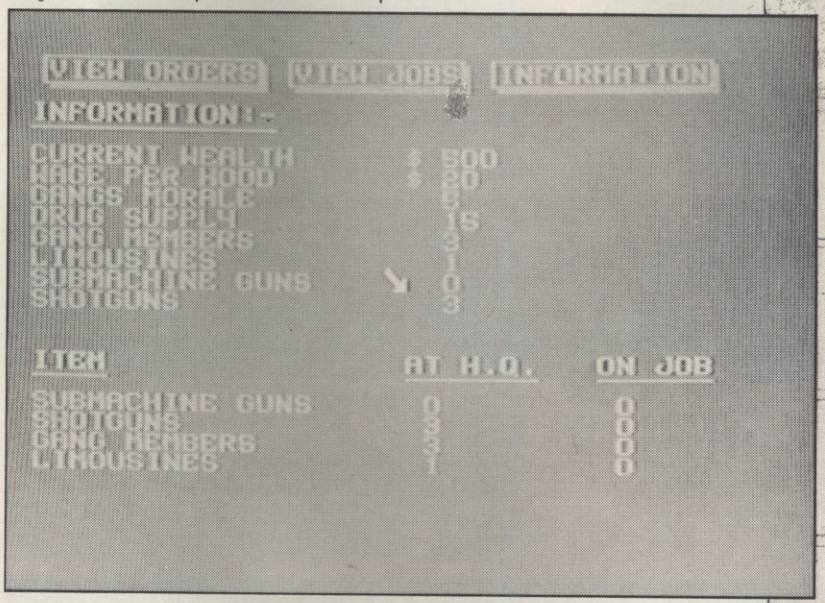
The targetting cursor is a circle controlled by the cursor. This is not the gunsight, however. The sight is a set of cross-hairs which has a certain inertia - it may take some time for it to home in on the target, making life much harder.

Be careful not to waste ammo, as running out may lead to the loss of men and weapons. If the snipers are left standing for too long, you may also take losses.

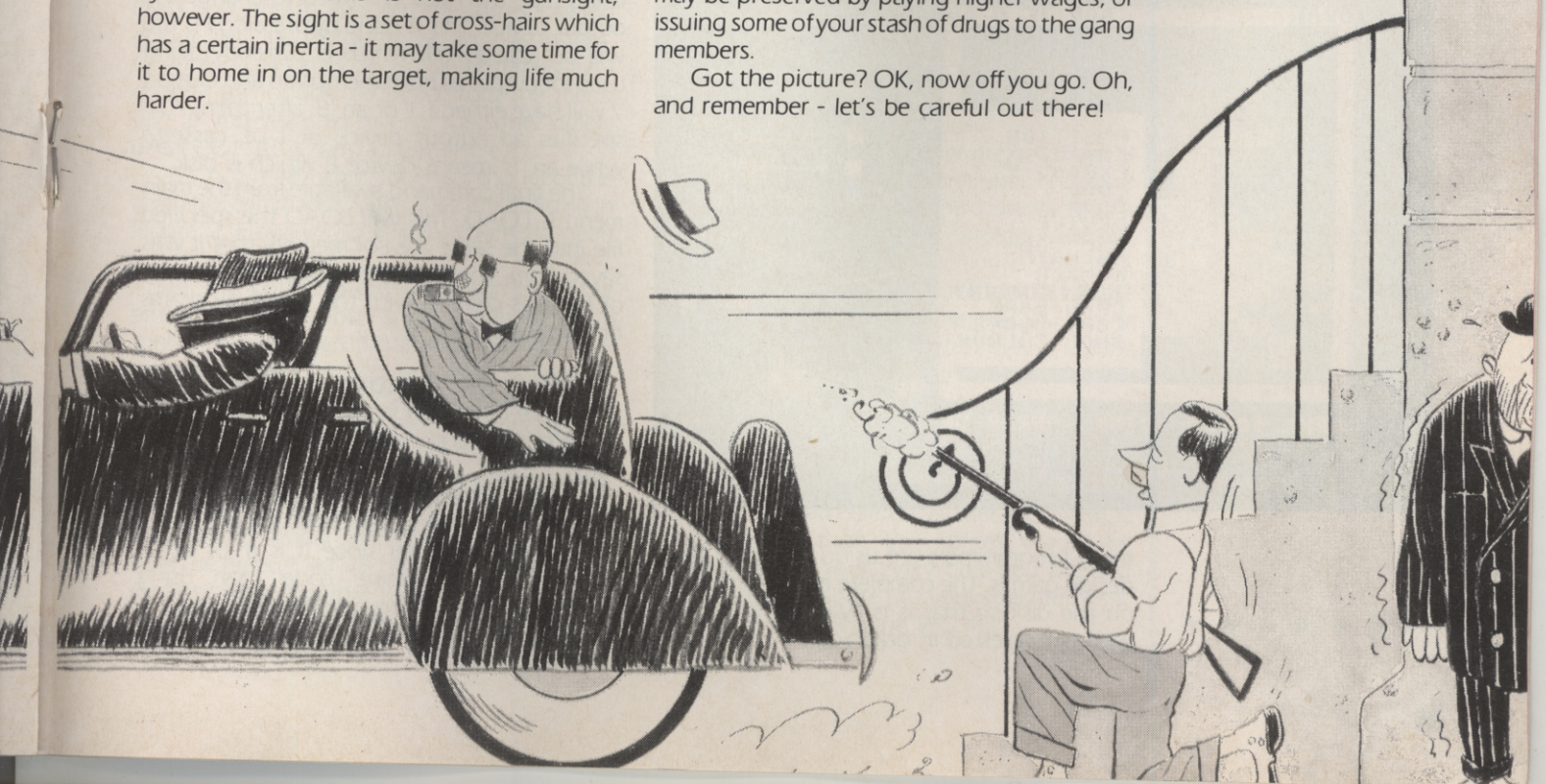
If you shoot enough snipers, you get paid, gang morale rises, and you stand a 60 per cent chance of getting a bonus.

Keep the boys happy

Bear in mind that morale is crucial. If the gang's morale drops too low, the treacherous bunch may well shoot you in the back. At the very least, their performance drops. Morale may be preserved by paying higher wages, or issuing some of your stash of drugs to the gang members.



Got the picture? OK, now off you go. Oh, and remember - let's be careful out there!



3 INTO 1 PLUS

We present what is probably the most sophisticated graphics designer that you'll ever need.

By Tony Crowther

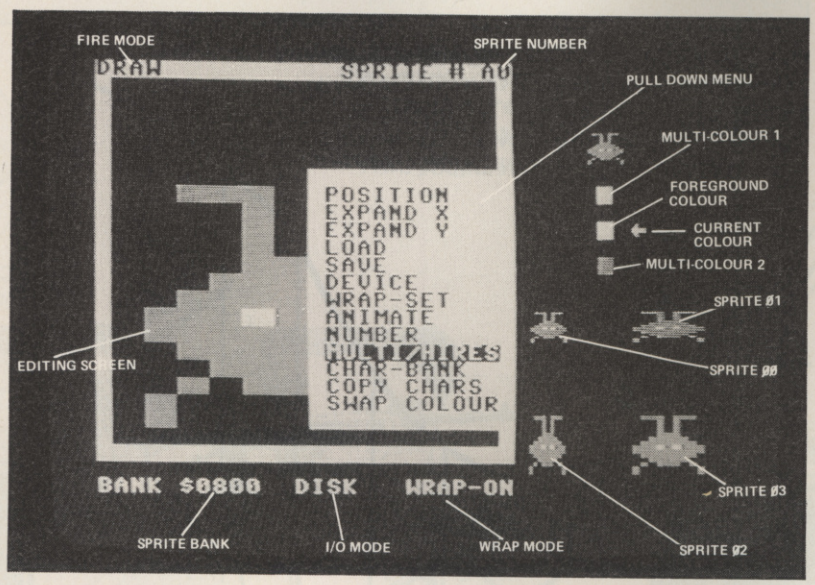
The vast majority of computer programmers probably have a diverse range of graphics aids. These may include screen editors, character editors or sprite editors. The only problem is that none of them can carry out all the functions that the programmer requires. Obviously, the only way around this is to use a number of programs to produce one finished product.

For example, if you were writing a game you would use a character editor to produce user defined characters. You would then use these to produce the actual background for the game. A sprite editor would be used to produce the sprites. Wouldn't it be easier if it could be done with one program which encompassed all the functions you will ever need? Hence the birth of the 3 IN 1 EDITOR.

3 IN 1 consists of s sprite editor that has provision for multicolour and hi-res sprites. Sprites can be animated, copied, positioned on top of each other etc. Within the program there is also a combined character and background editor. What makes this part of the program so special is that you are not limited to designing just single screens but it is possible to define screens that take up to 32K of the computer's memory.

The editing screens acts as a small window that can be moved over a much larger area. Until now most scrolling screens were designed as individual pictures and 'stuck' one next to the other at a later date.

The 3 IN 1 EDITOR has already aroused much interest in programming circles and



many programmers are using it to help them design games. The complete editor program is on the disk so that is is available to anyone who is interested in graphics.

Using the Program

Once you have loaded the program and started it running, (with SYS 51500) you will be presented with the editor's main menu which offers the following options:

1) SPRITE EDITOR
2) CHAR/SCREEN EDITOR
3) DISK COMMANDS
4) DIR
5) DISK REPORT
6) SAVE EDITOR
7) LOAD

Pressing the corresponding key will call up the specified function. Options 1 and 2 call up the sprite editor and the character/background editor respectively. These will be explained in their own sections later on.

Option 3 allows you to send the standard disk instructions to your disk drive. If you are unsure of what the commands are I have listed the main ones in Figure 1.

The DIR function will display a directory listing from any disk in the drive. However, because '31 N',only uses program files (i.e. PRG) then only this type of file is listed to the screen. Also the size of the file is not given as it is not really that important.

Just in case you ever have any disk errors, I have included Option 5 which will read the error channel of the disk drive and report any errors.

Option 6 is extremely important. This function allows you to make more copies of the program. If you use this function then you will be prompted for the filename that you wish to call the program by. The default output device when you load this program is disk. If you are using tape then you will need to change the output device. This is done by pressing F1. You will be able to tell which is currently being used for output as both this option and Option 7 will have either a '1' or an '8' after them. A '1' specifies an output device of 1 i.e. cassette while an '8' means device 8 which is disk.

The final command available from the main menu is LOAD. This will LOAD the specified file into the same area of memory that it was saved from. This means that you can load any of the files created with the editor programs from the main menu.

Using the Editors

Before I take a close look at the individual editor programs it is worth pointing out a few conventions.

Firstly all numerical inputs and outputs are in HEX. This is because most programmers work in hexadecimal since it is a lot easier when writing machine code than using decimal. Since this program was designed as a programme's tool it is obvious that it should

use HEX. All inputs must be made up to two or four digits e.g. '00' or '0003'.

Many of the functions can be controlled by either the cursor keys or a joystick in port two. Since the joystick only has one fire button and it may need to either erase or set points, the 'F1' key is used to select its operation. Both editors indicate whether the joystick is in DRAW mode or erase (DEL) mode. Take a look at the labelled pictures of both editors to see where the flags are.

As with the main menu the device for output can be either an 8 or 1. This can be changed from the pull down menu (F7). Again look at the pictures in order to see where the flag can be found.

The Sprite Editor

The sprite editor allows you to edit sprites in either multi-colour or hi-res mode. Sprites $A0 to $FF can be edited with the editor. If you are unsure about sprite numbers then I suggest that you read the section on sprites in the C64 manual. If you take a look at the picture you will see that there is quite a lot of information on the screen.

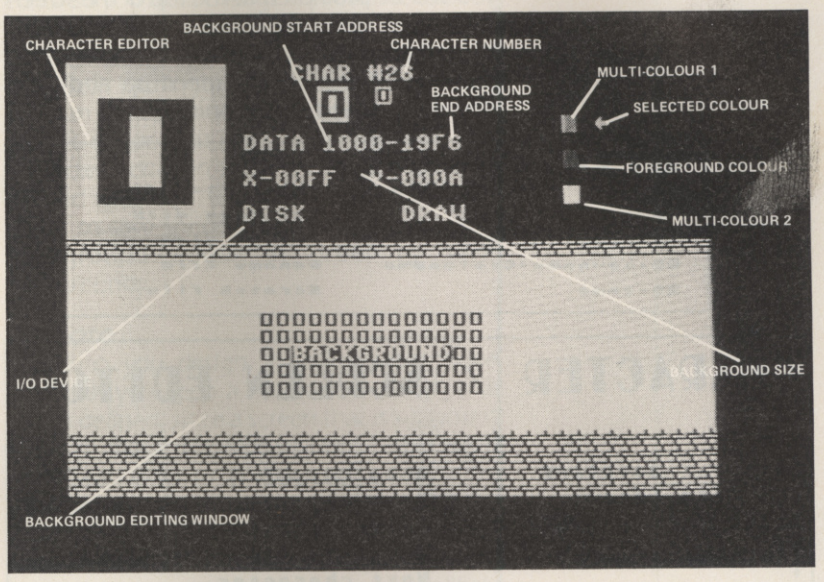
Firstly we have the actual sprite editing screen. This displays a blown up version of the sprite being edited. If you choose multicolour then the horizontal resolution will halve, exactly the same as with multicolour sprites. Unlike most sprite editors you actually design the sprite using the colour for each dot. This means that you don't have to think which combination of dots produces which colour. Simply press one to three to select the editing colour and, hey presto!, draw dots with it.

Colour changing is also extremely easy. Press shift one to five and the corresponding colour will go through all 16 possibilities. Changing colour mode is also extremely easy choose the option required from the menu (F7). If you want to reverse the sprite simply press CONTROL and R. Easy isn't it?

It's not really worth mentioning all of the available commands since they are all listed in Figure 2. However, a few functions do need further explanation.

At the bottom right hand corner of the screen there are four sprites referred to as sprites zero to three. Note these are NOT the same as sprite numbers but are just used as reference numbers for the four at the bottom of the screen. Usually these four positions hold the same sprites as that which is being edited. It is possible to expand these sprites using the pull down menu. To alter the way that the sprite looks simply select the desired option from the menu followed by the corresponding sprite position number (00-03).

Choosing POSITION from the menu followed by a number allows you to move that numbered sprite around the bottom of the screen. This means that you can position the four sprites next to each other or even overlap them. This may not seem all that useful at first but it is possible to make each of these four sprites different. This means that you could define a large character of up to four sprites joining the sprites together at the bottom of



the screen so that you can see what they look like. It is even possible to animate this section of the screen with the number option and the Q and W keys. Choosing NUMBER followed by 00 will cause each of the four sprites at the bottom of the screen to become the same as the one being edited. If on the other hand after you enter a number greater than 00 you can set up animations.

Animation is quite difficult to explain and is best figured out with practice. However I will do my best to explain how to set up and use this special animation function.

When you enter a number greater than 00 for the number of animations after choosing NUMBER the sprites at the bottom of the screen will change. If, for example, we had entered 01 and the current sprite was $A0, sprite 0 would be the same as the actual sprite $A0. Sprite 01 will be the same as $A1, Sprite 02 will be the same as $A2 etc. If we now press the keys W and Q we can increment and decrement the sprite numbers at the bottom of the screen giving the appearance of animation. If we press 'W', Sprite 00 will become actual sprite $A1, Sprite 01 will become actual sprite $A2 etc. If we had entered 04 after a CONTROL N instruction then the sprites would be incremented by four every time you pressed the 'W' KEY, i.e. sprite 00 would become $A4, Sprite 01 would become $A5 etc.

▶ ▶ ▶ ▶ ▶ ▶ ▶

I did say that this form of animation was complicated but if you try it then I'm sure that it will all fall into place.

Just in case you have problems with this type of animation there is a simpler form. This is the ANIMATE instruction. This instruction will change all the sprites on the screen, including the large editing screen, in increments of one for a preset length. When you choose ANIMATE you will be prompted at the top of the screen for the first sprite in the sequence and the last, then the sprites will be displayed in order. Pressing 'F' and 'S' will speed up and slow down the speed of this animation.

Disk Commands

I0	Initialise disk
V0	Validate disk
N0:name,id	Format disk
R0:newname=0:oldname	Rename file
S0:name	Scratch file

CHARACTER / SCREEN EDITOR

Cursor / Joystick	Move cursor
* / Fire (draw)	Draw point
Space / Fire (del)	Delete point
F1	Joystick fire function
+	Next character
-	Previous character
C	Copy character
G	Goto character
1 - 3	Select current colour
Shift 1 - 3	Change colours
CLR	Clear character
L	Scroll character left
R	Scroll character right
U	Scroll character up
D	Scroll character down
Y	Flip on Y axis
X	Flip on X axis
CTRL R	Reverse character
J	Jump to background window
Background Mode	
Left Arrow	Set top left of block
Cursors	Move size of block
Return	Set block
G	Get character under cursor
*	Place selected character
F7	Bring up menu
SWAP COLOUR	Swap multi colours over
BASE ADDRESS	Set start of background
FETCH CHARACTERS	Set where characters are in memory. D000 is normal set.
COPY SPRITE	Cursors to move block. RETURN to select RUN/STOP to exit

The sprite that is in the editing window can be moved within the editing grid with the keys specified elsewhere in this article.

If WRAP-ON is set what disappears off of one edge of the editing grid will appear at the opposite edge. If WRAP-ON is set then anything moved off the grid is lost.

Characters and Sprites

The option that may seem a little strange is the ability to turn characters into sprites. The pull down menu option CHAR-BANK is used to specify which character bank you want to look at. Should you want the normal Commodore characters then enter D000 at the prompt.

COPY CHARS is used to position the desired characters in the sprite grid. When this option is selected a large square will appear in the sprite editing grid. This can be moved within the grid using the cursor keys. Once you have the block where you want your character to appear press RETURN. You will then be prompted for the character that you want to appear in the sprite. Try this using the character set at D000 and you'll soon see what this option does. Use RUN/STOP to exit the COPY CHARS option.

All change

It is possible to change one multi colour to another with the SWAP COLOUR option on the pull down menu. When selected this option presents you with the three multicolours at the top of the screen. Move the arrow to the colour you want to swap and press return (use cursor left/right to move arrow) now select the second colour in the same way. When RETURN is pressed the two colours on the screen will swap over. DO NOT use this option when dealing with hi-res, use the reverse option (CTRL R) instead.

Character Screen Editor

Both of these editors are present on the same screen. The top half is the character editor while the bottom is used as a small window over a larger screen.

Quite a lot of information is present on this screen and it is worth studying the commented picture in order to find where everything is.

Again it is worth looking at some of the available commands in more detail, a summary of them all can be found in Figure 3.

As with the sprite editor, characters can be edited in either multi-colour or hi-res mode, colours being chosen and changed as in the sprite editor.

Once you have entered a character you can place it anywhere within a defined

background in the background editor. The 'J' key is used to move control between either the character editor or the background editor. You can see which mode you are in by seeing which cursor is flashing.

The background size is defined with the WINDOW SIZE option and the window can be anything from two by two characters upwards, the maximum in either direction being $FFFF. Obviously your screen size is limited by the amount of memory available. If there is not enough room for your window then you will have to enter new values. I have made up to 32K of memory available for the window though I'm sure that you will find that you very rarely use this much. The two numbers in the middle of the screen, after the word DATA, show you where your window starts and finishes in memory.

One very important consideration for games programmers is where they are actually going to put their screen. The BASE ADDRESS option will prompt you for the base address of the background so that you can move it where you want. Do make sure that you don't overwrite any other programs in memory, such as the editor.

You may think that it is a little limiting to just see a small section of your total graphics screen at one time. I have therefore included the 'W' command which will switch to a full screen display in which you can move around the background, movement being controlled by the cursor keys only.

It is possible to set up a border character which is displayed around the smaller editing window. I usually leave this blank though you may try different effects by putting fancy borders around the screen. This does not apply to full screen mode.

Painting a large area

When producing backgrounds it is quite usual for large areas of the background to be repeated elsewhere in the backdrop. A GRAB option is available that will allow you to grab a rectangular area of the backdrop and copy it to another position of the screen.

To use this mode you should be in the background editing section of the character editor. Move the cursor to where the top left of the block to be copied is and press the left arrow key (top right of the keyboard). Use the cursor keys to move to the bottom right of the area to be copies, and the rectangular area marked will be highlighted. Once the highlight covers the total area that you want to copy press the RETURN key. Now when you move around the background you will drag with you a copy of the block marked. You can place this anywhere on the backdrop by pressing '* ' RUN/STOP is used to exit this mode.

Saving and Loading

As I said earlier, it is possible to load any type of file into memory from the main menu. It is also possible to load any type of file from within any of the other editors as well. However the I/O device is separate in each editor so you must change it in each section of the program.

Even though you can LOAD in any type of data from within any section of the program, you can only save each type of data from the correct editor. You must therefore be in the character editor in order to SAVE your user defined graphics. You must be in the sprite editor to save sprites and you must be in the background editor in order to save backgrounds.

Note

When you design a background, make sure that you keep a note of the screen size that is defined, since a screen that is supposed to be 20 characters wide will look rather silly if the screen is set to 21 characters.

That just about sums it up for the sprite editor. I'm sure that you will find it very easy to use with a little practice and that you will find most of the instructions that you are ever likely to need.

SPRITE EDITOR

Most functions as for Character / Background Editor

F7	Bring up menu
CHAR-BANK	Where characters are stored (used by COPY-CHAR)
COPY-CHAR	Copy characters into sprite. Use Cursors to move, RETURN to place and RUN/STOP to exit.
WRAP-SET	L,R,U,D wrap around ON / OFF
ANIMATE	Use F to speed up, S to slow down

ON THE DISK

SKI RUN

It's thrills and spills all the way with this demanding slalom simulator

By Ting Zwei Kuei

Now you can savour the thrill of skiing in the warmth of your own home, and without risking the nasty inconvenience of a broken leg or two. Just load up Ski Run, and it's off down the mountain slopes.

Ski Run is a race against time. You must guide your skier, using the joystick, down a slalom slope, between a series of flags, within a specified time, and all without hitting a tree.

The screen shows you a three dimensional view of the slope looking down. You will see it from the skier's point of view, and can control their movements, right and left, and the speed with which you want to take the slope. But beware, if you take it too slowly, you may not make it within the two minute time limit, which means you will be disqualified. Qualifying gates consist of a pair of flags. Your job is to guide the player between the flags, and if you make it successfully they will turn from red to pink. Missing four gates will disqualify you, as will a collision with a tree, besides being painful.

Watch the speed, as your skier will slow down gradually if you supply no acceleration. If you complete the slope, you will be presented with a Best Time Table, and if you've set a record you can input your name by selecting letters using the joystick left/right and fire button.

Good luck and watch out for those trees!

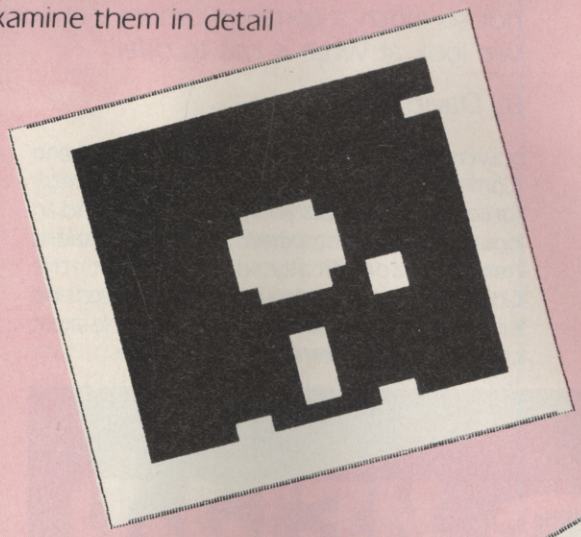
CONTROLS (joystick in Port 2)
Fire: Start game
Left: Guide skier left
Right: Guide skier right
Up: Accelerate
Down: Decelerate
F1: Abandon game
F7: Pause game (move joystick to restart)

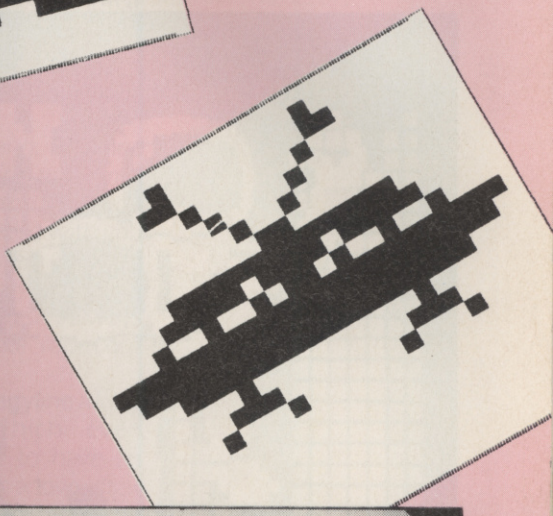
SPRITE PRINTER

Do you want to get a closer look at your Commodore's sprites? This little program lets you examine them in detail

By Gary Mayhew

ON THE DISK



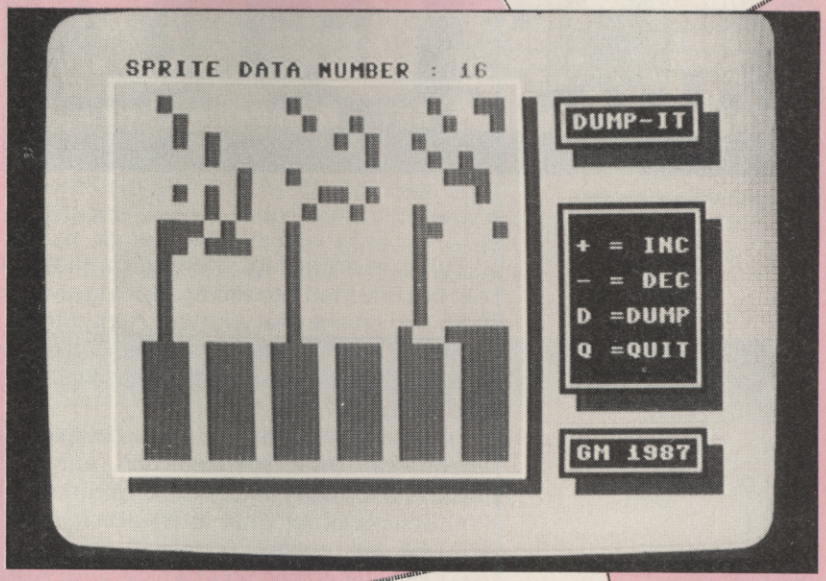


It's often hard to see how sprites are constructed just by looking at the sprites themselves. Sprite Printer enlarges the sprite memory areas of the Commodore and displays them onscreen or gives you the option of printing them out.

After you have loaded the program from the menu, it displays a large box on the screen, showing whatever is in sprite number 128. The sprite number is displayed at the top of the screen.

As you may know, the sprite pointer points to the 64 byte block of memory in which the current sprite is contained. To change this from basic, you would normally POKE values into the eight memory locations from Hex 2040 to 2047, one location for each sprite. With this program, however, you can simply flick through the blocks, backwards and forwards, by pressing keys '+' and '-'. If you want to move around faster, holding down the Commodore key while doing this will jump in steps of ten. The 'D' key will provide a hard copy if a printer is connected.

Remember, if you want to look at your own sprites, it is important to load the appropriate data before loading the Menu or Sprite Printer.

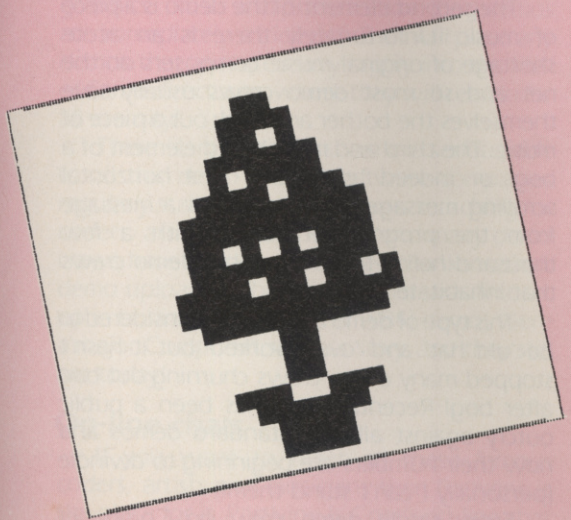


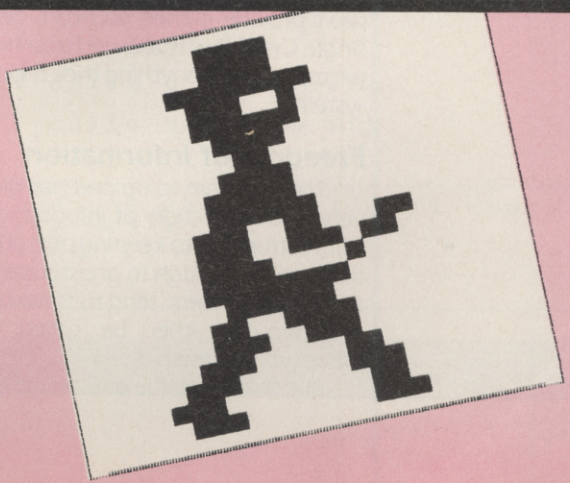
CONTROL KEYS

+ Increase the sprite pointer by one.
- Decreases the sprite pointer by one.
D Dumps the sprite displayed onscreen to a printer.
Q Resets the machine.

LOADING THE PROGRAM

To load the program outside the Menu, just enter LOAD "SPRITE PRINTER", 8, 1, followed by SYS 49152.



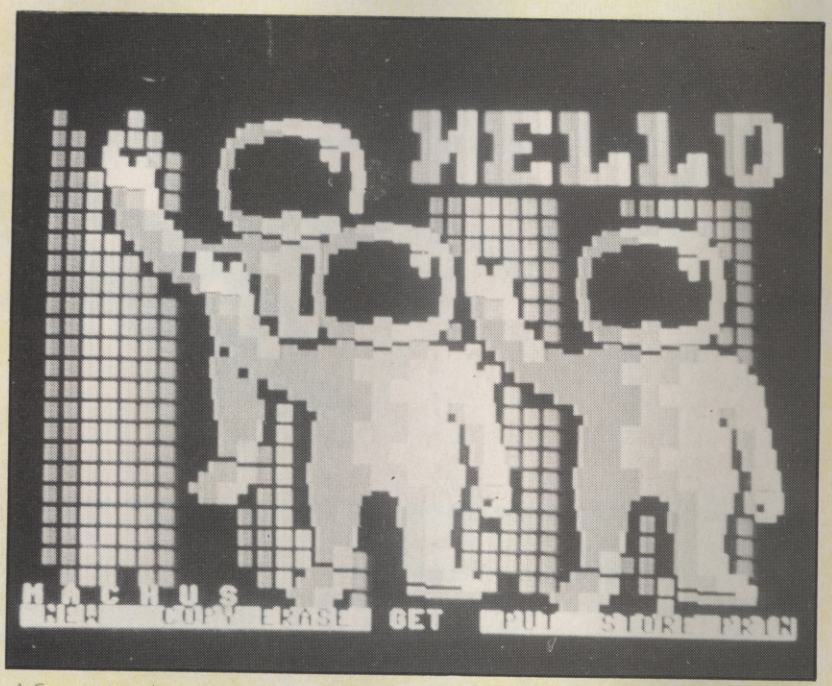


COMPUNET CULTURE

Compunet, the online network for Commodore users, is not so much a communications network as a way of life. We look at what it has to offer

By David Bain

Every night, hundreds of normal, sane Commodore users up and down the country forego their joysticks and paddles, to spend an hour or so on Compunet, a communications network specifically designed for the Commodore 64. But how can a few beeps and blips down a phone line possibly rival the latest chart topping software?



A Compunet editor screen

Well, in actual fact, these beeps and blips can be converted into almost anything ranging from a an on-line chat with your Aunty Ethel in the Isle of Wight to a totally free demonstration program featuring music, full screen animation and speech!

Compunet is a huge, on-line database of information, trivia, science fiction, software, reviews and much, much more. You name it and Compunet (or Cnet as it's affectionately known!) will probably provide it. And if they can't provide it then you can, because every single Cnet user is allowed to send (or in Cnet terms 'Upload') anything they choose on to the system.

Freedom of information

This freedom to upload has given rise to a very wide selection of information available, from astronomy to keeping pets and from sport all the way through to ghostbusting (although the 'Ghostbusters' tend to frown on that term and would rather be called professional parapsychologists).

But that's not the end of the story! It's just as easy to send your own programs that you've sweated over on to the system for all the other users to see - the money conscious out there may even charge for them!

The commonest type of program which is uploaded onto Compunet is probably The Demo. A demo is essentially a demonstration of a computer's capabilities. At first sight, this sounds rather boring, but believe you me they're not. The D.H. Lawrence Demo, Mental Moons and The Astronaut are the names of some of the most crazy Cnet demos.

However the most talked about demo of all time has got to be Thrust Concert. This is a four minute long extravaganza with an animated band playing along to a famous piece of Rob Hubbard music.

A demo can range from a simple tune or picture all the way through to flashing logos, amazing screen animation effects and mind blowing graphics! The people behind these demos are usually called 'Crews' and consist of a coder (who handles the often complex machine code part of the demo) and an artist (who draws the pictures and all other graphics, including the Crew's logos).

Finally a demo crew usually has a musician, although many demos feature musical pieces hacked out of the latest software (thankfully the software companies don t appear to mind, after all, it's good publicity for their games!)

Bog Standard

Perhaps the most famous type of demo on Compunet is the 'Bog'. The phrase was originally coined by a computer game reviewer way back in 1986. A bog demo consists of three main elements. The first is a picture, which is drawn by an artist (although some efforts leave a lot to be desired!).

The second element of the demo is a piece of music. Unfortunately there is an acute shortage of original music composers on the net and so most demo crews usually save themselves the bother and hack out a piece of music. The third and most hated element of a bog, or indeed any demo, is a horizontal scrolling message which contains a message from the programmer along with a few thousand hellos to all the other demo crews that inhabitate Cnet.

This type of demo is generally considered to be 'old hat' and 'over worked' but it hasn't stopped many demo crews churning out bog after bog! Recently there has been a public outcry against all bog standard demos and now their numbers are beginning to dwindle (personally I can't stand them!)

Every single demo crew on Compunet

usually have their own name and often a unique style of demo! Take for instance, the Mean Team. These guys really are mean when it comes to writing demos. Every single one of their uploads is faultless in both execution and presentation.

The KERNAL (a play on words!) is rather rare in being a one man show doing all the coding and graphics himself. His latest demos are special tributes to programmers like Jeff Minter and Andrew Braybook. However you don't have to be part of a demo crew to achieve programming fame on Cnet. As well as the demo areas, there are sections (known as Directories) for your art and music uploads. Skuzz and Yogurt are among two of the many Cnet artists. Skuzz concentrates most on fantasy/sci-fi pics while Yoghurt (not surprisingly bearing in mind his choice of name!) tends to draw humourous pictures, such as his Bog roll pic (which I won't explain here!)

Android and Hagar are two musical composers on the net, writing music which is often far superior to many pieces found in commercially available games. following their uploads both of them have now been employed by software houses to write commercial music.

New Talent

With so much talent it's hardly surprising that about thirty new demos are uploaded onto Compunet almost every day! In fact, it 's now become totally impossible to download all of the incredibly large number of demos available without running up an infinitely large phone bill!

For this reason, I started up a demo review area which has proved extremely popular. Every demo reviewed receives marks for graphics, music and presentation. (Bog demos are immediately criticized!) Cnet will place any demos that are rated very highly into the Hall of Fame directories where they will remain for all eternity!

There is, nevertheless, a more serious side to all this demo mania! Software companies regularly stalk the demo sections searching for coders, artists and musicians and many demo crews have already been hired thanks to their demo uploads. When Compunet was first set up in business (way back in 1984) demos were a major Compunet success story and they still are today!

On-line chats

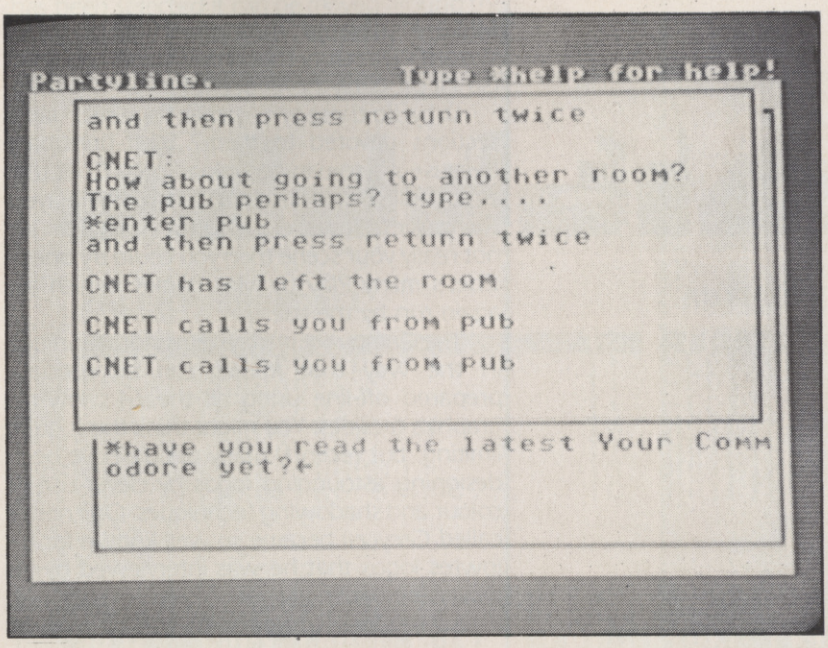
If you want to meet all these famous coders, artists and musicians then Partyline is the place for it. Partlyine is Cnet's on-line chat service (which according to the advertising hype, is the most advanced in the country).

Partyline may well be sophisticated, but it's dead easy to use - simply type in your message, hit return and it's u for all the other partliners (ie those on Partyline) to see. what makes it so special however, is the ability to choose your own name by using a special command. Ths you don't have to stick to your own normal, boring name but can call yourself anything you like. This system works very well for the demo crews, who often use Partyline under their own crew name!

As well as the name command, Partyline also has the facility to 'create' your own rooms, at will! All you do is simply name the room you wish to enter and bingo! It's created with you in it! Some people use this system to have secret chats with each other by creating a room called Private, however it doesn't always stop others, who enter the 'Private' room out of curiosity".

All these extra touches give Partyline a kind of personal atmosphere which even encourages non-computer users to have an on-line chat! Believe it or not but a love affair begain on Partyline several months ago! The two people involved now intend to be married (proving once again the truth in that old cliche - The power of computers!)

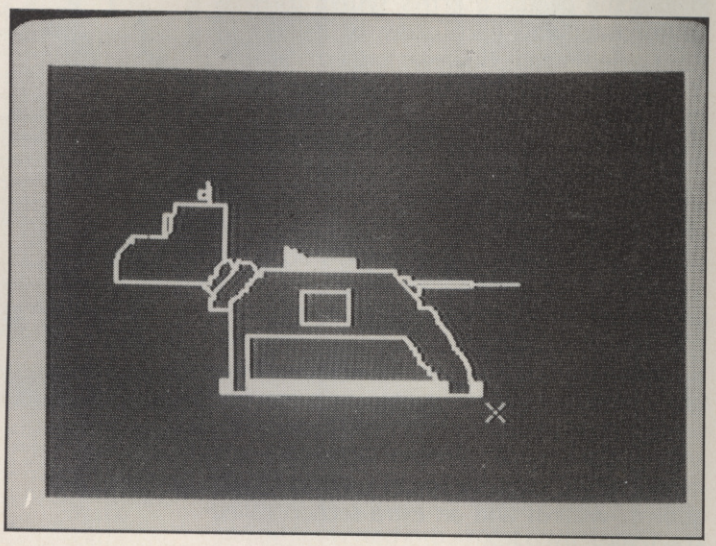
Some of you may prefer to spend your time (and money) on Cnet's multi-user games. At present Cnet offer two: MUD and Federation. MUD is the original version of Richard Bartle's famous Multi User Dungeon complete with goblins, wizards and an extra section called The Valley.


Partyline. Type *help for help!
and then press return twice
CNET:
How about going to another room?
The pub perhaps? type....
*enter pub
and then press return twice
CNET has left the room
CNET calls you from pub
CNET calls you from pub
*have you read the latest Your Commodore yet?

Federation is a space trading game which is still in its early stages. The remarkable thing about Federation is that despite the fact it isn't properly availllable yet (you can dial up a special number for a demonstration) there are already huge sections on Cnet devoted to it, listing weaponry, craft and tips. There's even a group of rather underhand people known as the Blade Runners who can be employed to seek out and exterminate anyone you choose. (In the nicest possible way of course!)

Glorious MUD

The Federation section on Cnet could never hope to match the sheer size of the MUD areas, which includes MUD gossip, deaths, maps, tips and notices. Every single aspect of



MUD is covered right down to a secret Wizard's Directory that only wizards can enter (so I'll probably never see it!)

Why do these two games have such large sections devoted to them? Well principally because it's so easy to upload onto Cnet that almost all the info is provided by the players themselves. However if MUD or Federation are not really your scene then you could try one of Cnet's many Play by Mail games (which are again run by the users).

The Compunet mail system is totally unique in the way that frames can be specially prepared off-line using all the 64's low-res graphics facilities. You might think this is quite limiting, but recently many people have been designing astounding logos by clever use of colour and shadowing techniques. One netter called Greycell became so well known for his lowres logos that he was interviewed by his local newspaper.

All of Cnet's major areas carry a low-res logo design (known as a banner) at the top of each directory. This novelty gives each section on Cnet its own individuality. The banner that appears in the Doctor Fogg section (which is an area with nothing but humour uploads) includes a little portrait of the infamous Dr Fogg himself, who claims he is the director of a company called 'Whoosh Laxative inc!'.

Dr Fogg's section is now legendary having uploaded such stories as 'Dr Fogg and Condom save the Universe' and 'The Fogg guide to The Highway Code' which is not recommended for those learning to drive!

Dr Fogg is also a known political figure and often uploads into Shockwave, Cnet's answer to the Houses of Parliament! During the last real election Cnet had its own three parties battling for the popular vote. Dr Fogg was one of the party leaders along with James Thompson (who kept insisting throughout the whole affair that he was an MP!) and Plasma, the head of his SDA party (any resemblance between the SDA and SPD is purely uncoincidental!)

The serious side

Not everything to be found on Compunet is just for a laugh. Many sections have a slightly more refined and serious air, although no one ever takes themselves too seriously. One of the most popular directories at the moment is the computer/hardware review area. Thanks to the ease of uploading, regular news updates and reviews can appear far faster than in any magazine. And what's the section called? Not 'Computer News' as you might think but 'The Electric Frog Plate!'

One of my favourite sections is Cosmos. Cosmos holds all the science orientated areas including a very large astronomy section (with star maps and space news), Doctor Who and Blake's 7 directories and the newest Cosmos section, Star Cops.

If you ever get bored with Compunet, although it's unlikely, then you could always dip into the communications section and find out where the latest bulletin boards are.

Money talks

Throughout this article I've been avoiding the one thing that seems to hinder each and every one of us in this world, yes, money! Compunet is not a charity and like all businesses it's out to make money. Assuming you don't buy any of the commercial telesoftware availllable on Compunet, you'll probably find yourself spending about forty to sixty pounds a year plus your extra phone bill charges (the on-line chat service, partyline, also costs £1 per hour).

To access Compunet at present you must have a C64 or 128 with a Commodore modem but Compunet plan to make the service availlable via non-Commodore modems by Christmas. There should also be versions for the Atari ST and Amiga by the end of the year while PC users will have to wait till next Spring! If you fancy getting onto Compunet then you can reach it on 01-997 2591.

Compunet is a Mecca for software enthusiasts. Besides the Demo, the classic Cnet artform (see our article Compunet culture), many examples of useful and/orentertaining soft ware are available to betters. The three examples provided on our disk include a graphics utility, a stunning sound and light synthesiser, and a seasonal demo. They should give you a feeling for the range of possibilities.

Draw

The first program, Draw, is by Cnet user Jason Gold. It is a sophisticated graphics utility, with a range of versatile and powerful features.

Draw is operated through a series of single key commands as follows:

QUICK KEY GUIDE

L: Line commands	
B: Block commands	P: Polygon
D: Draw mode	S: Sprites
E: Erase mode	W: Windows on/off
I: Invert mode	A: Air-brush
F: Fill	T: Text
F1: Colour selection	Shift/S: Save
F3: Cursor commands	Shift/L: Load
1-8: Pixels per move	Shift/P: Plot with colour on/off
Z: Zoom	Shift/:CLR: Clear screen
: Undo	
G: Get screen colour	Use a joystick in port 2.

Line commands ...'L'

Single lines:

Move the joystick to draw line and then press fire to finish the line. 'A' aborts at any time, and function can be changed to continuous lines by pressing 'C' while drawing the line.

Continuous lines: 'C'

Similar to single line except that when fire is pressed the cursor is moved to the current position and another line is drawn from the new cursor position. Press 'F' to finish.

Rays: 'R'

The same as single lines but when fire is pressed, control of the line is retained and it can be moved to a new position and another line drawn from the same point. Press 'F' to finish.

Parallel lines

Draw a line in the normal way and then move the joystick after pressing fire and another line parallel to the first will be shown. Pressing fire again will draw more lines parallel to the first. Press 'F' to finish.

Block commands ... 'B'

All these commands require the selection of an area of the screen to be altered. When a command is selected a small square (character size) will appear on the screen, moving the joystick will make the area get bigger and smaller (right/down bigger, left/up smaller). If you keep fire pressed and move the joystick at the same time then the whole square will move around the screen while remaining the same size. Press 'F' to finish selection and to continue with the command.

Press 'A' to abort area selection.

Mirror: 'M'

Mirrors the selected area about a verticle line. Moving the joystick repeats the command. Press 'F' to finish.

Flip: 'F'

Similar to mirror but the area is reflected about a horizontal line. Moving the joystick repeats the command, press 'F' to finish.

Copy: 'C'

Copies and area of the screen from one place to another. Once the area to be copied has been selected it can be moved around the screen until it's positioned correctly and then

press fire. A number of options now become available relating to how the block copied is placed on the screen.

'OR' retains all data from both the screen and the area being copied.
'BLOCK' retains only the data from the area being copied.
'XOR' retains data only where the screen pixels or the block pixels are set.
'AND' retains data only where screen and block pixels coincide.

Scroll: 'S'
Scrolls an area with pixel precision in any direction. When selected you are asked if you want to scroll with wrap. If you answer no to this then any data which scrolls off of the area selected will be lost. If you answer yes then the data reappears on the opposite side of the area. To scroll the area simply move the joystick and the area will scroll in that direction. Press fire to finish.

Reverse: 'R'
Reverses the area selected by inverting all the pixels. Moving the joystick repeatedly reverses the area. Press fire to finish.

Colour: 'O'
Sets the ink and paper colours in the area selected to the current values.

Draw mode... 'D'
All commands such as line, polygon and fill now plot pixels when called.

Erase mode... 'E'
All commands now erase pixels.

Invert mode... 'I'
All commands now invert pixels and free hand drawing only allows one pixel to be toggled on/off for detailed work.

Fill...'F'
Fills an enclosed area. The effect produced depends on the mode. When in draw mode it can be used to set all the pixels in an area. When in erase mode it can be used to erase complex shapes.

Colour selection...'F1'
The ink (foreground), paper (background) the border colours can be set using this command. Once the colour to be set has been chosen, a table of colours and codes will be displayed. Just type the corresponding number to the colour you want and press RETURN.

Cursor commands...'F3'

Size: 'S'
Move joystick to change size of cursor, fire to finish.

Cursor on/off: 'O'
Varies the rate at which the cursor accelerates to it's maximum speed.

1-8...
Pressing the number of keys 1-8 changes the number of pixels moved by the cursor at each movement of the joystick. Also effects commands like polygon, line and zoom.

Zoom...'Z'
Magnifies the screen to allow easy editing with pixel precision. While in this mode the 'D', 'E' and 'I' keys still function to allow changes in the drawing mode without leaving the mode and then returning. The colour attributes are also magnified. 'F3' can be used to change the cursor speed.

Undo...' '
This function returns the screen contents to its' state before the last command.

Polygon...'P'
Draw a polygon on the screen with any number of sides, although having a very large number of sides makes the polygon look like a circle. If less than three sides are selected then a circle is drawn.

A number of options are available while this function is being used, you may rotate, move, change the number of sides and the size in the X and Y planes of the polygon. A small polygon appears which cannot be affected by moving the joystick, you must first select one of the following options.

i) Change, the number of sides - move the joystick left and right to change the number of sides.
ii) Changing the size-moving the joystick in any direction changes the size of the polygon.
iii) Rotate-rotates the polygon about its centre. Move the joystick left and right to rotate in opposite directions.
iv) Move-allows the polygon to be moved about the screen with pixel precision.

Pressing fire once an option has been selected finishes the polygon and returns control to the main cursor.

Once one option has been selected,

another can be selected simply by pressing the appropriate key. Pressing 1-8 changes the increments by which the above options change each time.

SPRITES...'S'

The 8 hardware sprites can be used in any picture and provide an easy method of getting around the limits of the colour resolution in Hi-res mode.

Again, a number of options are available to the user:

1. **ENABLE SPRITE**- allows you to turn on sprites. You will be asked for a number between 0 and 7, this is the sprite number and before a sprite can be used it must be enabled.

2. **DISABLE SPRITE**- has the opposite effect of enable in that it turns sprites off.

3. **SHAPE**- allows you to set the shape of a sprite. The sprite will appear as a flashing square and it can be moved around the screen under joystick control. Position the sprite over the shape you want it to take and press fire. The sprite will then become the shape underneath it. Press 'F' to finish.

4. **COLOUR SPRITE**- Select which sprite you want to set the colour of and then enter the colour in the normal way.

5. **POSITION SPRITE**- Use the joystick to change the position of a selected sprite.

CIRCLESQUE

Going from the useful to the mind-blowing, the second Compunet program on our disk is Tim Rogers' Circlesque, a sound and light synthesiser of some sophistication. Rather than describe the indescribable here, we invite you to LOAD it and see for yourself. Full instructions are provided in the program, and can be accessed if you enter Shift/H after loading. Before doing anything, however, wait for the program to ask you to press the space bar. Besides the Help option, pressing Shift/Return after this will give you a Demo program.

Finally, just to show you what David Bain is talking about, Fireworks is a Compunet Demo with a distinctly seasonal flavour. RUN it and enjoy it!

To run any of the Compunet programs independent of the menu, just type LOAD "name",8 and then RUN.

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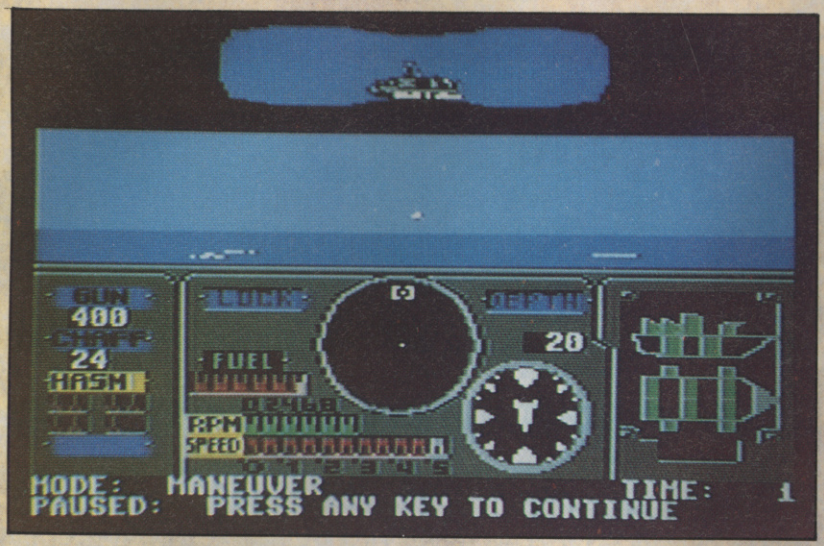
GAMES REVIEWS

Our team of hypercritical, discerning reviewers take a long hard look at the latest releases in the disk games market.



PHM PEGASUS

The Patrol Hydrofoil Missilecraft is a high-speed weapons platform on patrol in the warzones of the world. Now the Pegasus has you at the helm!

Armed with a 76mm water cooled naval gun, Harpoon or Gabriel guided missiles and electronic counter measures as well as a rapid chaff disperser, you must engage the enemies of the free world in eight challenging scenarios that range from a practice session with live ammo to escorting a ship through the treacherous waters of the Gulf!

Pegasus is controlled through two screens, the map screen and a 3D combat screen. The map screen is used to get into the action by moving your Hydrofoil over the scenario map as well as being a radar guide to the enemy. You're not solely dependent on your own feeble radar but can also move two search helicopters to find the enemy. To speed up the strategic side of the game you simply speed up time to up to 128 times normal speed. When you find the enemy patrol craft, missile corvettes and helicopters you switch back to normal speed and to the combat screen.

The combat screen includes the instruments to pilot the hydrofoil manually as well as a damage display and radar, a 3D view of the scene directly ahead and above and a view through binoculars of any locked-on target so you can find out what it is before you blow it away.

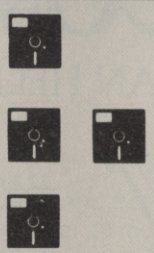
It's tempting to sail the seas blasting anything and everything that you find but you should only attack the enemy and make sure you don't run out of ammo (you only get eight missiles and a 400 shot gun) before you've reached your target.

Most missions are also timed and must be completed in a set number of hours otherwise they will be lost even if you're the only craft left afloat.

Pegasus isn't an easy craft to fight with - decisions must be made at top speed as that's your best defence and you'll find it will take a few missions to perfect your tactics and stay the distance. A good game that just falls short of great.

AT A GLANCE

Name: PHM Pegasus.
Supplier: Electronic Arts, Langley Business Centre, 11-49 Station Rd., Langley, Nr. Slough, Berks SL3 8YN Tel: 0753 49442.
Graphics: action packed.
Sound: whoosh, bang, splash!
Playability: tough
Addictiveness: let me at them!



CHESSMASTER 2000

There is something immensely satisfying about beating a computer at chess. Proving to yourself that a human is still the master if the machine. Conversely, should the fates conspire against you and you come off second best, the feeling of despair is total. Excuses are muttered, expletives sworn and all to no avail. You know that you have lost to a better player and the fact that it is a non-human opponent makes the pill all the more bitter.

Chessmaster 2000 is a package designed to induce suicidal tendencies in even the most stable of us. Not that that is a criticism. Far from it, as CM is easily the most powerful chess program currently available on the C64. It doesn't just beat you, it overwhelms you. If you manage to hold your own against it, you can always set the playing level a little bit harder. Demoralising it may be, but it's the only way to improve.

Of course, there may be occasions when you do not want to be obliterated by advancing phalanxes of pawns. Again, there is no problem. Simply select the easy mode or, if you feel like a more relaxed style of play, the coffeehouse rather than tournament mode. Not only is CM the strongest opponent

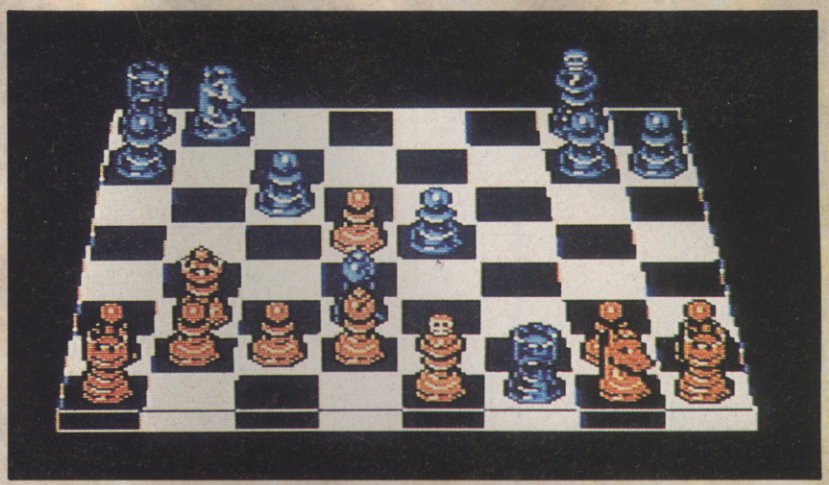
currently available, there are more options available than the number of moves it usually takes to beat me.

Two or three dimensional board, joystick or keyboard options, changing the background colours, rotating the board and altering the speed at which you replay games are just a few of your choices. These are all cosmetic touches though.

You can set up any position that you want - ideal for solving newspaper problems. You can save and restore favourite games, display all your legal moves and even, shame on you, get a hint.

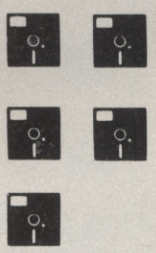
It is difficult to find anything adverse to say about CM. The display is excellent in both models although I suspect that most people will revert to 2-D. The list of features is as comprehensive as you could want and the playing ability superb. Should you get delusions of grandeur and fancy yourself as a latter day Bobby Fischer, there is a second disk included in the package containing 100 classic games for you to study at your leisure.

If you are in the market for a chess program, look no further. Chessmaster 2000 is in a league of its own.



AT A GLANCE

Name: Chessmaster 2000.
Supplier: Electronic Arts, Langley Business Centre, 11-49 Station Road, Langley, Nr. Slough, Berks, SL3 8YN. Tel: (0753) 49442.
Price: £14.95.
Graphics: excellent display.
Sound: some annoying bleeps but they can be toggled off.
Addictiveness: the best chess program available for your 64.
Playability: all the options you are ever likely to need.



DEFENDER OF THE CROWN

The King is dead! Long live the King! Who will be King! That's up to you as you take up your sword to do battle with two other Saxon Lords and three Norman usurpers who all desire the throne of England.

Each Lord has three abilities that decide his powers in the game that range from strong to weak. A strong leader will inspire his troops in the field of battle, a good swordsman will be able to plunder enemy castles and gain wealth and maybe even rescue a damsel in distress whereas a weak jouster will lose land and fame in the tournaments.

Each turn (or month) you will receive money for each part of Merry England that you own and from this wealth you must raise the army of soldiers and knights to fight for the throne. Soldiers are cheap and expendable but necessary to defend your castle (it's difficult for a knight to get his steed up onto the ramparts) but in the field of battle the more expensive knights win the day.

Conquest is just one of the actions you can do in a turn, as you can also buy more troops to defend your castle, hold a tournament to joust for fame or land or raid and enemy castle.

When you raid an enemy castle you send only your best swordsmen and together you take on the castle guards. The others are only there to make up the numbers as it's the fights that decide the outcome of the mission. By timing your joystick moves between thrusting button presses and parrying joystick moves you should wear away your opponents energy bar and still have some of yours left.

Inside the castle you meet a second, tougher, guard who you must beat and force up the stairs. Defeat him and you'll get the loot and maybe even rescue a Saxon damsel in distress. However, should you lose, then you're kidnapped and released after payment

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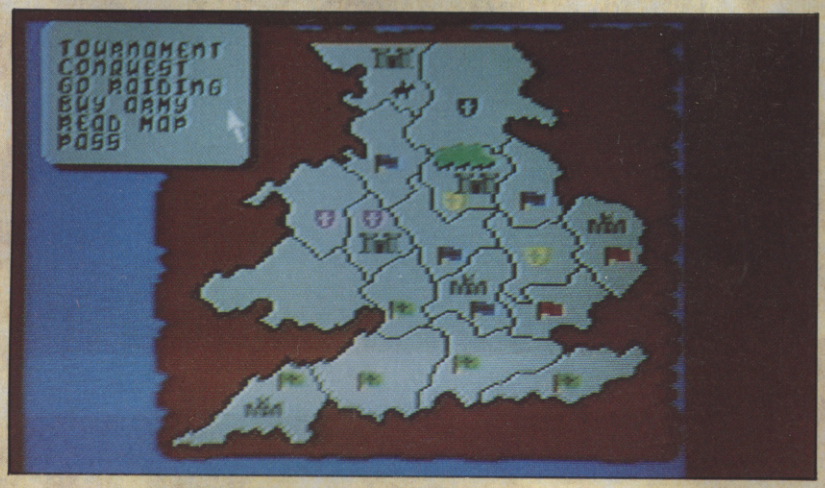


of a few crowns.

If you hold a tournament then all the Lords will come and do chivalrous battle with horse and lance. You can take a specific Lord in a Joust and wager fame (which affects your leadership) or a plot of land on the result.

A fanfare of trumpets opens the tournament and you and your opponent ride to opposite ends and face each other. The signal is given and your horse leaps into life. As you thunder towards your adversary you wait to time your blow to aim it on his shield. Now! You catch him off balance and win the day.

Unfortunately, it isn't that simple, as you can lose hard fought land with a single blow of a lance, you can lose money by paying ransom for failed raids, and while your army is out fighting in some distant battle your castle can be lost if it's left undefended. However, if you defend your castle you can't raise the income to build the army to gain the land to get the money...

As a Saxon you're at a further disadvantage as the land near you isn't worth as much as the Norman south and so they build bigger armies that you'll have to face. Nobody said it was going to be easy to win the throne.

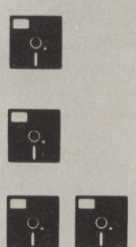
You have one ace in the hole. He lives in Sherwood forest actually, and will help you three times during the game and give you more strength in castle raids or a winning edge in important battles however you have to ask him so even Robin Hood can't save a poorly defended castle!

I found the best tactics were to send your entire starting army of 20 soliders out on Conquest to seize as much land as quickly as possible which will earn enough to build a better force to defend the castle while you go raiding or win some land in the tournaments. That's the theory, all I have to do now is put it in practice.

Defender of the Crown is an excellent conversion of the original Amiga game that features some great graphics which are turbo-loaded from disk to keep the action going. You've read about the game, now play it!

AT A GLANCE

Name: Defender of the Crown.
Supplier: Mirrorsoft, Athene House, 66-73 Shoe Lane, London EC4P 4AB Tel: 01-377 4645.
Price: £14.95.
Graphics: they call it cinemaware.
Sound: fanfare for a would-be King.
Playability: a good strategy, war, arcade game.
Addictiveness: down with the Normans!



A flight simulator, this game lets you fly a B24 bomber and command a whole squadron. As a combat simulator it lets the enermy blow you to bits as you take on some of the toughest bombing raids of World War II.

Your targets in nineteen missions are the oilfields of Ploesti in Rumania that fuelled Hitler's war machine. Your mission is to bomb them and shorten the war.

You begin the game with 40 fully armed, fuelled, and repaired B24 bombers. Your own plane is waiting on the runway ready for takeoff which you achieve with a few simple keyboard presses. Once airborne you must circle the airfield while the rest of your squadron fit into the formation.

Your next task is to fly in tight formation so that you don't lose any bombers on the way to the target and rendezvous with the fighter escort. The fighters will take care of any enemy bandits but can only stay in the air for a fraction of the flight so you must keep on the right course at the right speed as you have to rendezvous with three different escorts and they're wasting their fuel waiting for you.

As you approach the target you should reduce height and throttle control to reach the optimum attack run and then let the bombs away when you're over the target. To inflict

the most damage you need to get as many bombers as you can over the target at the right altitude and speed then get them clear. As the bombs explode you should get your squadron away from the target as quickly as you dare before the long journey home to base and rendezvous with three more fighter escorts.

If you're even slightly out with just one part of the mission you could leave your squadron open to enemy attack or suffer unnecessary damage such as lost planes through flying too low over mountains or over-stretching engines to reach a missed escort.

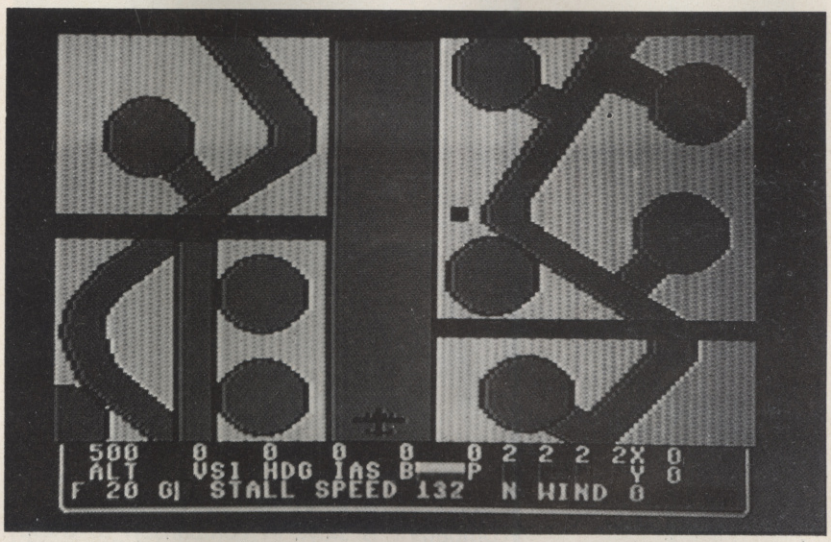
You've got just 19 missions to destroy all two targets so you haven't got much room for error. Damaged planes will be repaired but this takes time and you'll fly at least some of the missions with only a handful of planes. It's a sobering thought that the historical squadron of 60 B24's that flew the actual missions only survived with just four aircraft.

The game box contains the disk as well as a map to plan your route to rendezvous with escorts and avoid the most heavily defended cities, an historical account of the missions and an instruction book with directions to get you through a training mission.

The game is a strategic representation of the missions which assumes that a squadron leader knows how to fly a plane and so reduces the controls to a few key presses. This doesn't mean that you won't have plenty to do as you have to plan the route, rendezvous with escorts and complete the bombing run.

The graphics are crude but functional and only show your squadron as three planes that move jerkily across static screens accompanied by the hum of the engines.

B24 is a good game which gets incredibly tough when you have to fly mission four with only three planes! It's going to be a long war...



AT A GLANCE

Name: B24.
Supplier: SSI/US Gold, Units 2/3 Holford Way, Holford, Birmingham B6 7AX Tel: 021-356 3388.
Price: £19.99
Graphics: jerky.
Sound: hummm.
Playability: tough.
Addictiveness: you'll soon run out of missions.

Moebius - The Orb of Celestial Harmony

When it comes to Commodore 64 graphics we can teach the Yanks a thing or two but there's a lot they could teach us about strategy. The cross-fertilisation of ideas seems to be happening with the advent of Moebius which contains realistic action screens as well as the usual map adventure.

Moebius lives in the Far East in the days of Warlords, Ninja and magic. His Orb of Celestial Harmony has been stolen by Kaimen, the Evil One who has taken it to the Realm of Fire where Moebius cannot go. A young acolyte is called for who can fight the legion of foes who lie between the Realm of Earth and the Realm of Fire.

First the chosen one must be trained. How can Moebius the Windwalker entrust a novice with such a quest? And so it is that the start of the game finds you in the training school where you must become adept at all of the fighting skills required before Moebius will let you commence your journey.

The three skills required are hand to hand combat, swordfighting and mastery over magic. The skills can be practised on any of nine levels but be advised and concentrate on the higher levels because the foes you meet in the game can be mean ... really mean! Try to tackle each foe with his own weapon. After all, using the sword against an unarmed Ninja does seem a little unfair.

The training sequences are displayed in

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pseudo 3D scenes as in games like Exploding Fist and Fighting Warrior. The reaction of your combatant is slow in comparison to these games and the range of blows limited. I shouldn't complain, it's an improvement on the usual attempts at adventures with animation. At least the Americans are trying, bless 'em.

When you have successfully pummelled the unarmed assassin, sliced up the sword wielding palace guard and mastered the magic arts, Moebius will allow you to attempt your quest.

After a bit of disk changing (prompted by commands such as 'Please put Side 2 in the Magic Box'!), the second disk change loads the Realm of Earth. The view is limited to a heavily iconised screen which seems to be 90[vegetation. This is where your sword becomes useful because you spend a fair amount of time hacking your way through the undergrowth in search of food, water, treasure chests and the way out!

To help you you have an overall map of the Realm which shows the shape of the land and the buildings. Added to this there is a Memory Map which shows a slightly larger area than the normal screen display with icons representing all that is around you.

It's not long before you get that feeling that you're not alone. Usually this happens when a tiger bounds up to show off his many talons. Later you meet friends and foes. The friends may or may not assist you with gifts and words of wisdom but the foes are much more reliable and will always try to separate your soul from your body.

Shrines often house evil monks who need to be fireballed to death. Although you can blast them in the shrine, you lose this power in the outside world. Unfortunately, they don't and will blast you wherever they find you and can turn the forest into Dodge City.

In dark corners the assassins lie in wait, on palace forecourts lurk the guards. Meet one of these and you will enter the action screens where you have to keyboard them to death with all the skills you learned at training school.

Moebius The Orb of Celestial harmony is contained on two double sided disks. This means a lot of disk swapping and flipping but I didn't find this flip flopping about at all intrusive. It seems that each side is a complete module. In other words, when you move from the training school to the adventure you have to change the disk at the start but don't have to touch it again until you meet your doom or decide you want to save your position after a hard day's fighting.

Five characters can be created and stored on disk ready for use but they cannot travel as a team. Each character must venture alone on his quest and only three quests can be stored at a time. Why have five characters when you can only use three? Dead players are not wiped from the list until the player requests it so the extra two positions form a sort of high score table or posthumous role of honour.

Moebius is much more of an action game than any of the similar Origin System products we have seen over here so far. There's never a dull moment and the instruction manual is written like a novelette to the high standard we have come to expect. Apart from the game you get a genuine imitation acolyte headband and a large colour poster.

I was dubious about the Americans invading our software market with their cerebral software but Moebius is a punchy strategy adventure with a sharp edge to it.

AT-A-GLANCE

Name: Moebius - The Orb of Celestial Harmony
Supplier: Origina/Microprose, 2 Market place, Tetbury, Gloucestershire GL8 8DA Tel: (0666) 54326
Price: £19.95
Graphics: Improvement on normal American graphics
Sound: Mainly bleeps but nice music at the start
Playability: Slow but sure
Addictiveness: Creeps up and grabs you

These are games which completely sum up the difference between the US and UK approaches to software. They both show abysmal presentation and have all the use-friendliness of a cornered rat, but for all that they possess an undeniable addictiveness, simply because of the thoroughness of the underlying programming.

Battlecruiser and Warship are both tactical naval simulations from Strategic Simulations, Inc., which has being doing this sort of program for many a year, mostly on the Apple II. They are both based on the same program logic, and effectively simply load different scenarios.

Battlecruiser simulates Atlantic battles for two historical periods, World Wars I and II, while Warship covers WWII Pacific battles. The first program really is the better value in this respect, as the two different periods use both sides of the disk.

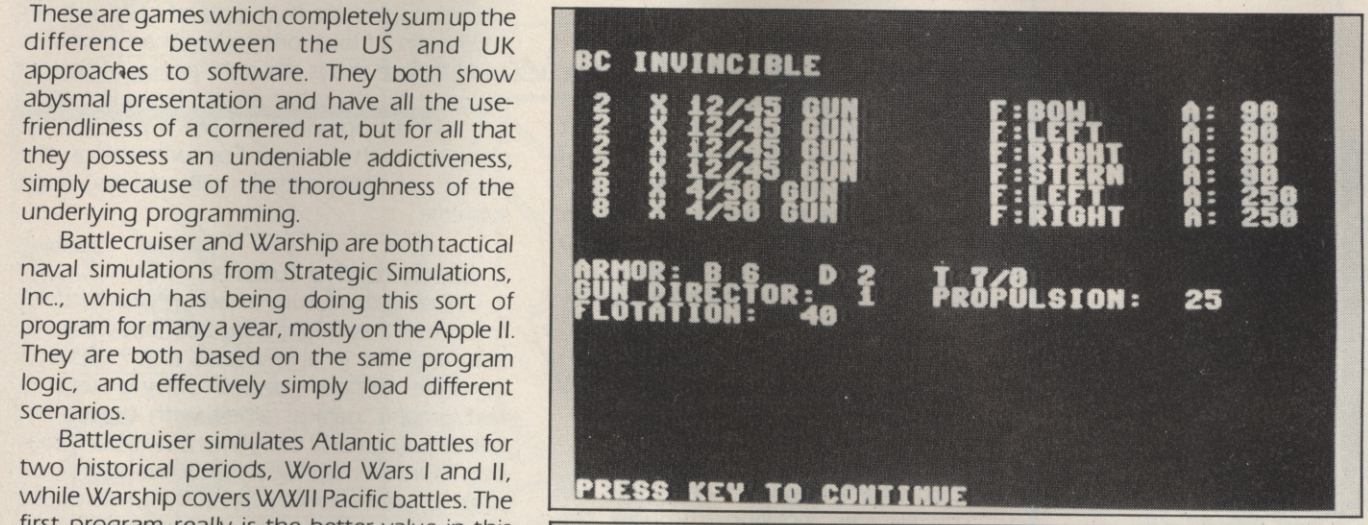
Besides the preset scenarios which both games offer, you can set up your own games in incredible detail. Each warship, and you can have up to twenty per side, can be specified right down to the smallest gun. Factors such as deck and belt armour, maximum speed and fire control accuracy are also controllable.

When it comes to play, well there isn't a lot to see. These really do look like Apple II games from about 1978. The ships swan around the screen as elongated blobs, and the keypress system of control is unnecessarily complicated - it would have been a straightforward matter to put things under joystick control.

Ships can be controlled individually or allocated to one of up to nine divisions. It's far easier to keep things under control by the latter method. Targets can be allocated and speeds and courses plotted by the same system. Play proceeds in five minute gametime chunks, at the end of each of which you can intervene and change the orders.

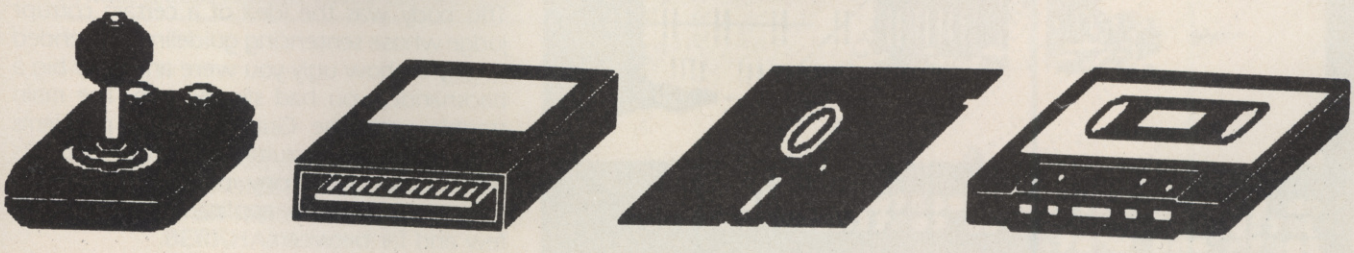
To add one final criticism, the result is somewhat slow and halting, but somehow the game transcends all this and can become oddly addictive. There is something hypnotic about watching the rival formations swirl in and out of each other's visibility ranges, while the program tots up the gun hits on each vessel in pedantic detail.

This is a fascinating game, particularly given the shortage of naval simulations. But it is seriously flawed by naff presentation and a clumsy keyboard interface.



AT-A-GLANCE

Name: Battlecruiser/Warship
Supplier: SSI
Price: Battlecruiser £24.99, Warship £29.99
Graphics: I don't even know if I'd call them that
Sound: Distant gunfire interspersed with the odd bleep
Playability: Annoyingly clumsy system of control
Addictiveness: If you like naval simulations (which I do) then it's extremely compulsive.



DISK DUNGEONS

Our resident crazed dwarf holds forth on the world of adventuring
By Grontol The Mad

Being given two blank pages by the editor and told to fill them with "something about adventures", sounds like a dream come true. Until you try to do it. What do you lot out there want to read about? Do you want short, snappy reviews, long, tedio...er in-depth reviews, news items, maps, hints, letters or what?

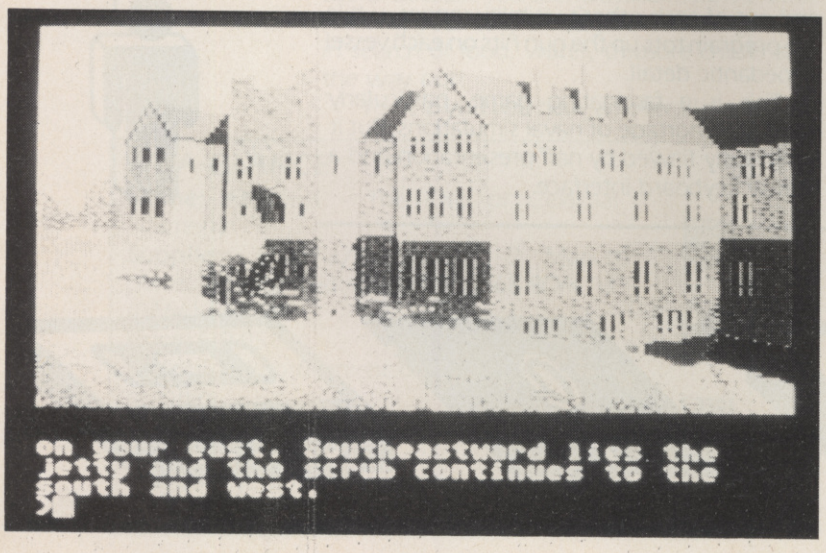
In the best traditions of cowardly journalism, I'm going to leave the decisions to you and invite you to write in telling me what you think. There are two incentives. One, if you don't, you will have to suffer my random ramblings every issue and two, I, Grontol The Mad, will sit on the editor until he coughs up some suitable prize for the best letter.

In the meantime, here are a few of my thoughts on the state of the industry today, which you may like to comment on, plus reviews of two recent releases that you may not have caught up with yet.

Shock waves

To start with, a snippet of news that will send shockwaves rippling through the industry. Infocom are going to start including graphics in their games! Apparently this is not from choice, but is a marketing device. Text only games look exceedingly boring when demonstrated in shops. It would be interesting to know whether this is more in response to the retailers or whether the emergence of companies like Magnetic Scrolls is beginning to pose a threat to Infocom's number one adventure house position.

For anyone who has been hibernating for the past few months, MS have released two games, The Pawn and Guild of Thieves (see reviews) which contain a number of full screen illustrations of a quality previously unknown in adventures. They range from excellent on the C64 to absolutely stunning on machines such as the Amiga.



The argument from companies like Infocom (and I used to be one of their most ardent supporters) was that no illustration could ever convey the atmosphere that they evoked from their text. The balance is definitely shifting though.

One final thought on the subject. It is interesting to note that most of MS's pictures have been of locations rather than creatures and I believe this is the right policy. I know in my mind exactly what an orc looks like and I get very disappointed if I see a picture that disagrees with my view. For some things, the power of imagination will always reign supreme.

Back to the future

What is the future of adventures? I don't mean that they might disappear but what will they look like in a few years time? Will they continue to be puzzled solving text or text/graphic games, albeit with bigger and better parsers and storylines? Will icons take over? Or will there be a shift towards the role playing games, which can still include quests to be solved but shift the emphasis more towards strategy?

Already there are three excellent role-playing systems round - Ultima, Alternate Reality and Bard's Tale. Once the basic format has been established, extra modules can be added so that you can end up with one large story or several closely related ones.

Personally, I am beginning to prefer the role-playing games and think that they will slowly take over from the traditional game. But, if you don't want to see them in this column, then write in and tell me. What about the subject matter of games? Fantasy still predominates with science fiction, detective and other subjects all being left far behind. In this what you want to see or are you fed up with the same old diet?

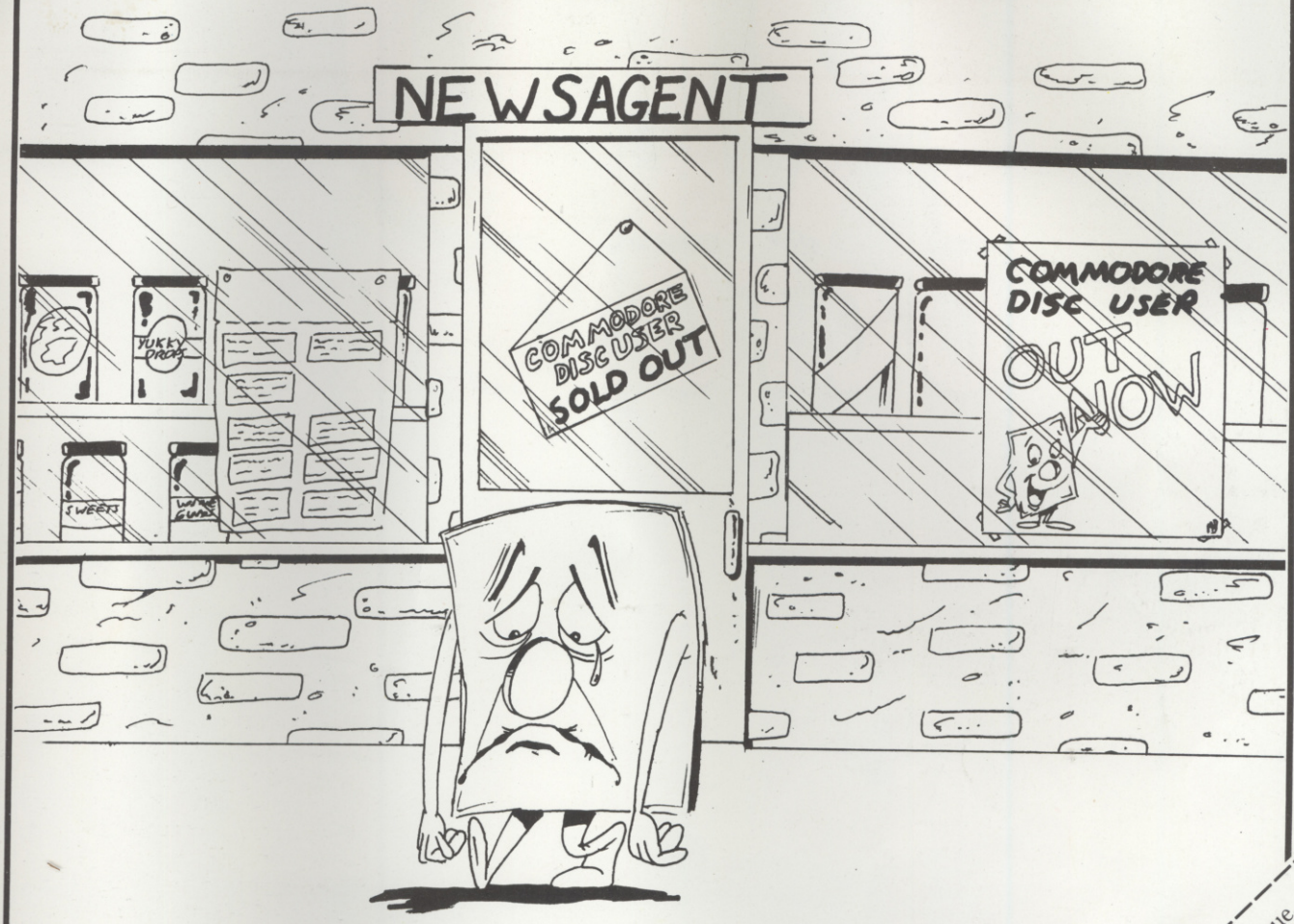
The Guild of Thieves

This is the second release from Magnetic Scrolls, following on from their very successful Pawn. The storyline is almost a return to the very early days of adventures, being no more than a treasure hunt, but there the similarities end.

Crime has not entirely been legalised in Kerovnia, but it is all controlled by the Guild. This body was the idea of a certain corrupt judge whose sentencing guidelines depended largely on how ugly you were and how big a backhander you had slipped him. The main trouble with the Guild was the problems encountered in recruiting new members. As the initiation ceremony inevitably involved a long lingering death, applications to join were few and far between.

As an experiment, it was decided to

KNOW THE FEELING?...



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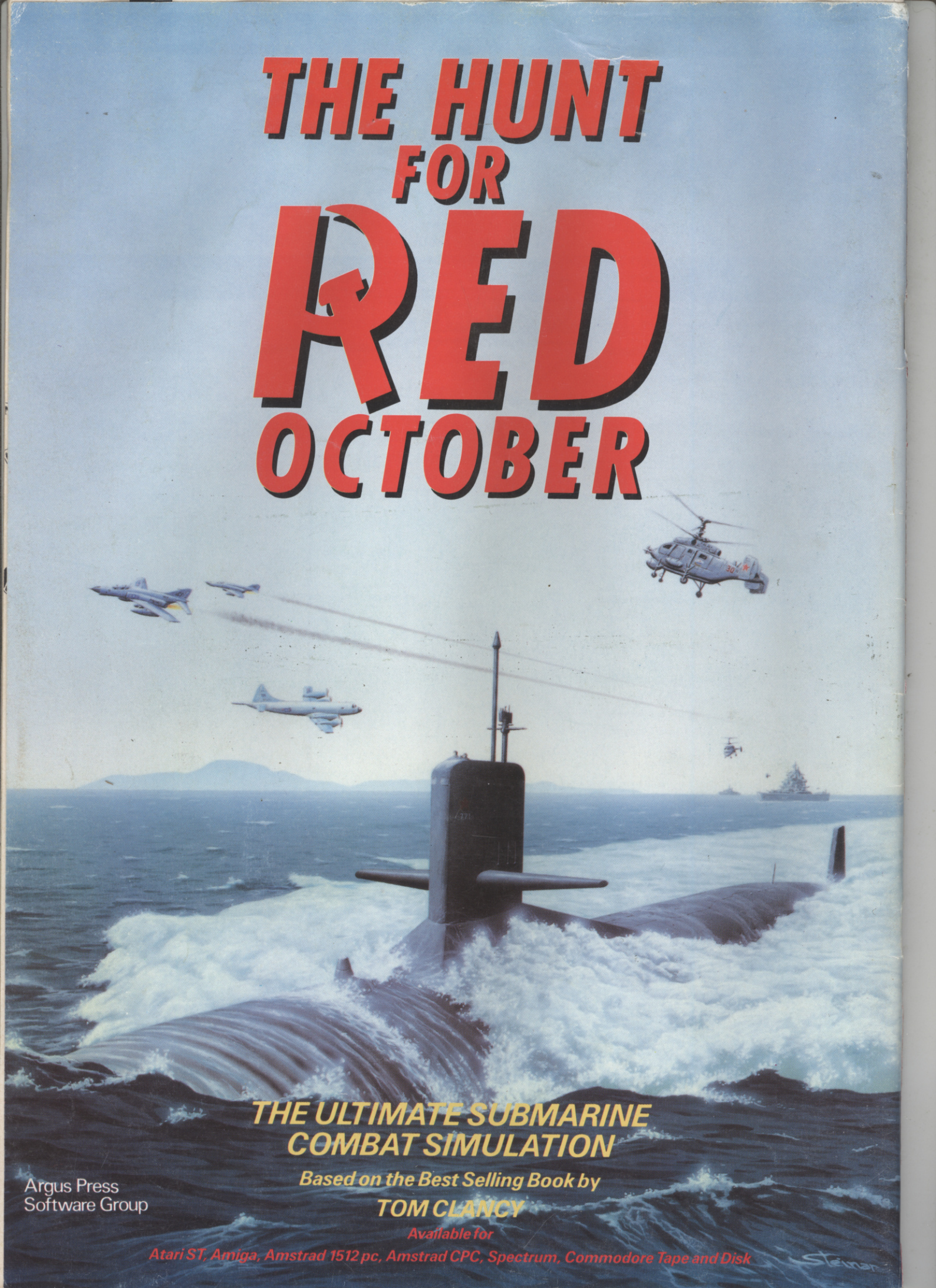

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